

# **Food Aid Monitoring Activity Final Report 2000 – 2003**

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## Acronyms used in this document

BL	Baseline survey
BMI	Body Mass Index
CARE	Cooperative for Assistance and Relief Everywhere
CRS	Catholic Relief Services
CWS	Church World Service
EL	Endline survey
FAM*	Food Aid Monitoring Activity
FFW	Food for work
FFP	USAID Bureau for Democracy, Conflict, and Humanitarian Assistance Office of Food for Peace
HA	Height for Age
Hb	Hemoglobin
HH	Household
HKI	Helen Keller International
IDP	Internally Displaced Person
IR	Intermediate result
M&E	Monitoring and evaluation
MCI	Mercy Corps International
MCK	<i>Mandi Cuci Kakus</i> – public bathing, washing, and toilet facilities
MCH	Maternal and child health
NGO	Non-governmental organization
NSS	HKI/GOI Nutrition and Health Surveillance System
PVO	Private voluntary organization
TAP	Transitional Activity Program
USAID	United States Agency for International Development
WA	Weight for Age
WH	Weight for Height
WSB	Wheat Soy Blend
WVI	World Vision International

\* Acronym used for the HKI Food Aid Monitoring Activity and should not be confused with FAM – Food Aid Management, Washington, D.C., USA



## Executive Summary

The Food Aid Monitoring (FAM) activity was a three year monitoring and evaluation activity conducted by Helen Keller International (HKI) Indonesia, to examine the nutritional impacts of food-for-work (FFW) programs implemented under the Transitional Activity Program (TAP) of the USAID/Indonesia Office of Food for Peace. As part of the TAP, FFW programs were implemented throughout Indonesia by a consortium of five international NGOs: CARE, Catholic Relief Services, Church World Service, Mercy Corps International, and World Vision International. The HKI/GOI Nutrition and Health Surveillance System (NSS) documented the nutritional impacts of the Asian economic crisis on Indonesia's poor, establishing reliable and sensitive indicators to household level changes in food security. Because of this experience, HKI was invited to join the TAP consortium and the FAM activity was established in 2000.

The FAM activity was implemented in 5 FFW program areas throughout Indonesia: 3 urban sites (Jakarta, Surabaya, and Makassar) and 2 rural sites (Central Java/Yogyakarta and East Kalimantan). Beneficiary households and non-participating control households were surveyed prior to the start of the FFW programs and at regular intervals throughout the course of the programs. A key element of the FAM was the regular feedback of survey results from program areas to the implementing NGOs and USAID.

Key findings of the FAM activity revealed appropriate targeting by the NGOs to reach the poor. Recognizing that many factors can contribute to improved nutrition, the FAM activity also tracked indicators of environmental conditions, access to health services, agriculture, household economics, and food consumption. The community level impacts of the FFW activities themselves were documented, including improved access to latrines and/or home gardens in certain sites, and improved access to and/or utilization of health services in certain sites. The programs also had a positive impact on household economic security in some sites, as evidenced by reductions in debts or no accrual of new debts among beneficiaries compared to controls.

The FFW programs had limited impacts on the nutritional status of the beneficiaries. Small improvements in child anemia among certain age groups in certain sites were observed, as well as less wasting of very young children in beneficiary households compared to controls. However, signs of a larger scale recovery from the crisis were indicated by increasing BMIs and vitamin A intake from retinol-rich foods of women in both groups in most sites. An emerging issue that is related to this evidence is the rise in obesity among the poor, a trend which was documented among beneficiaries and controls in the FAM activity, as well as through the nutritional and health surveillance of the HKI/GOI (NSS) among 70% of Indonesia's population during the same period. Observing an increase of obesity among mothers alongside a high prevalence of anemia among young children reflects an imbalanced diet with excess energy intake and too low micronutrient content. This is a typical diet composition for poorer segments of populations. This phenomenon of malnourished children with obese mothers has been observed in other parts of the world, including Latin America and urban areas in Africa, and is referred to as the 'double burden of malnutrition' (i.e. the occurrence of undernutrition, including micronutrient deficiencies, as well as overnutrition, obesity and its associated chronic diseases, in the same population).

While the FFW programs brought about some positive changes among the beneficiaries, the impact on nutrition was limited. This is not in-line with the expectation that was based on the well-documented observation that the economic crisis resulted in an increase of micronutrient deficiencies, particularly anemia among young children. The fact that the FFW programs were only able to reverse this to a small extent and only in two sites is due to a few factors a) the impact of the economic improvement at household level, related to receiving the FFW

benefit, was diffused among different sectors of expenditure, b) the interventions did not specifically address the underlying iron deficiency, c) for some FFW programs the duration of the program was too short to expect to be able to detect improvements, and d) recovery from the economic crisis also caused improvements in both groups, which made it more difficult to detect additional changes related to the FFW programs among the beneficiaries.

With respect to point b above on specific interventions, it is recommended that interventions should be fine-tuned to more directly address the needs of the particular population groups. Therefore, it is recommended that FFW programs provide (multiple) micronutrients that can be purchased by the FFW beneficiaries with the additional money that is freed up due to the FFW benefit. This would also increase sustainability. Such an intervention has been already proposed and developed by HKI particularly to reduce the very high prevalence of anemia among young children in Indonesia. Similar program developments are proposed for other countries in the Asia-Pacific as part of a regional effort to reduce the devastating impact of anemia on the current generation of children, who may not develop to their full physical and intellectual potential and also to prevent the re-emergence of a 'lost generation,' as documented during the Asian economic crisis.

Evidence-based decisions are key to successful program implementation and understanding program impacts will ultimately help to allocate scarce resources in the most efficient way. Activities like the FAM can contribute important information that can assist in making decisions based on evidence.

It is important to recognize that it is equally necessary to achieve the Millennium Development Goals of reducing childhood and maternal mortality, and increase childhood education among internally-displaced persons (IDPs) in countries affected by man-made or natural disasters. As food aid is expected to continue to play a major role in efforts to alleviate nutritional and health problems within these groups, it is important to implement activities like the FAM to further contribute much-needed (but presently-scarce) information on the real nutritional benefits of FFW programs not only in the development context, but also in the context of emergencies.

## **1. Introduction**

Indonesia has been seriously affected by the Asian economic crisis and in addition, unfavorable climatic conditions, such as the El Niño/La Niña, have further aggravated the situation by reducing agricultural production. From 1998 onwards, the economic crisis has led to high inflation, decreased incomes, increased prices and reduced purchasing power. As a result of this, the number of households living below the poverty line has dramatically increased and the poorest sector of the population has become even poorer. In order to provide insight into the health and nutrition situation, Helen Keller International (HKI) re-initiated the Nutrition Surveillance System (NSS) in 1998 in Central Java.<sup>1,2,3</sup>

Over the years, the NSS has been instrumental in providing an immediate assessment of the impact of the economic crisis on the health and nutritional status of women and children in Indonesia. The NSS identified that the impact of the crisis was more severe in urban slums than in rural Central Java.<sup>4,5,6</sup> As a result of these findings and their rapid dissemination, several organizations and donors, including USAID, ADB, UNICEF and WFP, developed or expanded their nutrition, health and food assistance programs to reach urban poor households.

Right after the peak of the economic crisis, USAID's Bureau for Democracy, Conflict and Humanitarian Assistance/Office of Food for Peace committed up to US\$ 50 million in 1998 in Title II Emergency US food commodities to assist people in the most severely affected areas of Indonesia. USAID/Indonesia (USAID/I) added another US\$ 3 million to this amount through the Title II Emergency Food Support Activity (TEFSA).

In year 2000, USAID's Bureau for Democracy, Conflict and Humanitarian Assistance/Office of Food for Peace initiated the Transitional Activity Program (TAP/FFP). Five international NGOs formed a consortium to implement this program, allowing for better coordination of activities and efforts. TAP/FFP activities comprised mainly of Food for Work (FFW) programs and, to a lesser degree, supplementary feeding programs and conflict resolution initiatives. In order to measure the impact of this program, USAID/I wanted to monitor the impact on nutritional status. With multi-country experience in nutritional surveillance and monitoring and evaluation (M&E) and an on-going Nutrition Surveillance System in place, HKI had the technical capacity to conduct such an activity as part of the USAID-funded NSS and the FAM activity was started.

## **2. Objective of the FAM activity**

### **2.1. Overall objective**

The objective of the FAM activity is to determine the impact of FFW programs on the nutritional status of its beneficiaries by evaluating the USAID Office of Food for Peace

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<sup>1</sup> Re-emergence of the treat of vitamin A deficiency. Yr 1, Iss 2, October 1998.

<sup>2</sup> Alarming rise of iron deficiency anemia may herald 'Lost Generation.' Yr. 1, Iss 3, October 1998

<sup>3</sup> Have 30 years of nutritional improvement in Southeast Asia disappeared in one year of crisis? Yr. 1, Iss 4, October 1998

<sup>4</sup> High prevalence of acute malnutrition in urban slums. Yr 1, Iss 7, November 1999

<sup>5</sup> High prevalence of anemia among young children in urban and rural areas. Yr. 2, Iss 1, January 2000

<sup>6</sup> Decreasing 'prevalence of anemia' among urban children: Does it indicate increased access to micronutrient rich foods? Yr. 2, Iss 3 March 2000

Transitional Activity Program (TAP) initiative, which has been implemented by various NGOs in Indonesia.

## **2.2. Specific objective**

The specific objective of the FAM activity is to evaluate the impact of the TAP/FFP initiative on nutritional and health status of program beneficiaries, as determined by:

- a) Anthropometry (bodyweight + height) and
- b) Micronutrient status (hemoglobin concentration).

## **2.3. Rationale for choice of key indicators**

Maternal Body Mass Index (weight relative to height) and child hemoglobin concentration were chosen as the key indicators to measure impact of the food-for-work programs on nutritional status since HKI has found, by monitoring the economic crisis through the NSS, that these indicators are very sensitive indicators of changes in nutritional status in Indonesia (Appendix I).

# **3. Methodology**

## **3.1. Design**

The FAM activity used a prospective, longitudinal cohort design, meaning that the households selected to be involved in the beginning of the activity were followed up over time. In each site, approximately 1500 TAP beneficiary households and 1500 control households (of similar socio-economic status, but not participating in the TAP) were identified using random selection methods. Baseline surveys were conducted immediately prior to the start of the TAP program implementation and food distribution in each site. Subsequent survey rounds were conducted at approximately 6-month intervals, or as appropriate depending on the schedule of the NGO programs in each site. Appendix III is a timeline of data collection rounds in each site. In urban areas, a brief questionnaire was administered to beneficiary households every month between survey rounds to collect information on program participation.

## **3.2. Sample size calculation**

At the beginning of the FAM activity, HKI estimated that a sample size of 1200 beneficiary and 1200 control households would be required in each site. This sample size was calculated to reflect an expected increase of maternal BMI from 21.8 to 22.3 kg/m<sup>2</sup> with a standard deviation of 3.4 kg/m<sup>2</sup>, which was based on data from the HKI/GOI Nutrition and Health Surveillance System (NSS). The sample sizes required to detect meaningful changes in other outcome indicators, specifically maternal hemoglobin, child anthropometry, and child hemoglobin, were similar or lower. An additional 25% (300 households) were added to the sample size of each group in each site, in anticipation of drop-out, thereby resulting in the sample size of 1500 households per group per site.

## **3.3. Selection of beneficiary group**

Prior to the beginning of the FFW programs, each implementing NGO provided a list of all households that would participate. From these, 1500 households were randomly selected using interval sampling. In areas where TAP NGOs work through local NGOs, it was not always possible to provide a full list of all FFW participants at the same time, since local NGOs were on different schedules. In these cases, best estimates were made about how many households would participate in each local NGO area, and then a population proportionate sample was taken based on those numbers. Throughout the course of the activity, as FFW beneficiaries were ‘graduated’ or dropped out from the program, new beneficiary households were added to the FAM sample. Whenever possible, only households that were new to the FFW programs were recruited as “new” FAM households, so that the first data collected was as representative as possible of the status of that household prior to joining the FFW program, thereby maximizing the ability of FAM to identify potential impacts of the programs.

### **3.4. Selection of control group**

Three NGOs implemented their program among urban poor (in Jakarta, Surabaya and Makassar) and two among poor in rural areas (Central Java and Kalimantan).

In urban areas, control households were drawn at baseline from the coinciding round of the HKI/GOI Nutrition and Health Surveillance System (NSS), which is a random sample of urban poor. Each round of NSS sampled 2400-3600 households (depending on the area). To avoid confounding, FAM identified all NSS households that were not participating in social-safety net programs at the time of the survey, then randomly selected 1500 households to follow over time as the FAM control group in these urban areas. As the FAM progressed, if the number of urban controls reached below approximately 1200 households due to drop-out, then new control households were recruited from the corresponding round of NSS to maintain a sample size of approximately 1500 households per round.

In rural areas, for each intervention village involved with FAM, partner NGOs (CARE and CRS) helped to identify “matched” villages that met the criteria for program implementation but were not involved with the program. Within those non-participating villages, HKI applied the selection criteria of the respective NGO to identify households that were comparable to FFW households in the intervention villages. Within each of the matched, non-participating, control villages, a similar number of households were randomly selected to serve as the control group. As the FAM progressed, if the number of rural controls reached below approximately 1200 households due to drop-out, then new control households were recruited using the same selection criteria to maintain a sample size of approximately 1500 households per round.

### **3.5. Data collection**

The sections below describe the data collection.

#### **3.5.1. Survey instruments**

FAM questionnaires were developed based on the NSS questionnaire, and also with input from NGO partners about the characteristics of the programs being implemented in each site. The major categories of information collected in the household questionnaire included: demography and socio-economic status; environmental conditions; agriculture, farming, and fishery; food prices and general household food consumption; expenditure on foods and other items including savings, education, clothes and health-care; health, nutrition, and use of health services; and program participation. The weight of women, under-five children, and

whenever possible, fathers, was measured, without shoes and with minimal clothing, to the nearest 0.05kg using an AND UC-300 Precision Health Scale, (A&D, Tokyo, Japan). Heights of these individuals was measured using microtoise, while the length of children less than 24 months was measured using a lengthboard. Precision of height and length measurement was 0.1cm. Mid-upper arm circumference (MUAC) was measured to the nearest 0.1cm using an insertion tape (Ministry of Health, Indonesia). Blood collection was done by finger-prick to measure hemoglobin concentration (to assess whether the subject was anemic) using the HemoCue system (Angelholm, Sweden).

### 3.5.2 *Staff*

Recent graduates of nutrition, public health, agriculture, and related fields were recruited and hired as FAM enumerators. Enumerators were carefully selected, trained, and retrained prior to each survey round in questionnaire administration and methods for taking anthropometric and blood measurements. Prior to working on the FAM activity, many enumerators also had previous experience working with the NSS. Each team of 4 enumerators was supervised by one field supervisor.

### 3.5.3. *Quality control*

For quality control, a special quality control team re-visited and re-interviewed 10% of households that had already been visited by the enumerators. Information that was collected by enumerators was compared with information collected by the quality control team. These results were discussed at refresher trainings and used, along with a statistical check of the quality of the anthropometric measurements taken by each enumerator, to evaluate their performance. Enumerators that were found to perform badly were dismissed from future data collection rounds. Enumerators that performed well were promoted whenever possible to the level of supervisor, or other positions of increasing responsibility within HKI's Field Operations and Data Management (FODM) Department.

An additional level of quality control was employed to ensure that the same households and key household members (women and children) were being interviewed and measured from round to round. Field supervisors checked questionnaires at the end of each day in urban areas, and compared women and children's name, date of birth, and height with the same information collected in the previous round. In rural areas, enumerators telephoned results to the field supervisor daily or as frequently as possible. For children's height, an acceptable range of growth (based on the child's age and the time elapsed since the last measurement) was applied to determine if the current measure was plausible. Women's height was considered plausible if the measurement was within 2 centimeters of the previous measurement. Field supervisors noted any discrepancies in the key information, and dispatched quality control teams to revisit any such households. In the second visits the identity of the women and children was confirmed and anthropometry (heights and weights) were re-measured.

## 3.6. **Data entry**

Data were entered using SPSS Data Entry Builder for Windows. This program checks the validity of values as they are being entered. Another measure of quality control of data entry was the re-entry of 10% of data entered by each operator by a special team. FAM data from Jakarta, Central Java/Yogyakarta, and East Kalimantan were entered by HKI staff in Jakarta, while FAM data from Surabaya and Makassar were entered by staff in the HKI Surabaya office. After data entry, the consistency of the data was checked and further data cleaning

was performed. This included a second comparison of the heights of women and children to previous measurements, and verification of questionnaires for any cases where discrepancies indicated possible data entry errors.

### **3.7 Data management and analysis**

Data management and analysis were conducted using SPSS for Windows. EpiInfo software was used for calculation of anthropometric Z-scores for children. Throughout the course of the program, data were organized according to the chronological round of data collected in each site. Baseline surveys were considered Round 1 (R1), and subsequent rounds were referred to as Round 2 (R2), Round 3 (R3), etc. Analyses conducted throughout the course of the program (for presentations and reports) were based on the chronological, or 'true' round. Examples of these analyses are provided in Appendix IV (Workshops given to USAID and NGOs on FAM) and Appendix V (Responsiveness of FAM to USAID and NGO requests for information).

However, since the duration of participation in FFW varied, households were regularly leaving and entering the FFW programs. As a result, the 'baseline' data for new households was not only at the start of the programs in 2001, but throughout the course of the program as NGOs enrolled new participants and new communities. To accommodate for this, FAM data were reorganized in a way that allowed all 'new' households to be set to the same baseline, or 'virtual' Round 1. For example, a household joining the FFW program in July 2002 could have been interviewed in the 'true' Round 3. However, since this survey would actually represent the baseline for that household, the data for that household in July 2002 are considered the 'virtual' Round 1, or baseline (BL) data. The results section of this report refers to 'true' and 'virtual' rounds, based on this convention.

For the analysis of nutritional impact, the virtual rounds were used. In that way, all children under-five years old and all mothers that joined the FAM activity at any time during the intervention period could be analyzed in the same analysis. How long they had been followed, irrespective of when they joined, has been shown in the respective section of this report. Thus, for this analysis, the assumption has been made that the impact of participating in FFW depended on duration, but not on the actual period of participation in the 2.5 years of the program, whether for example from July 2001-July 2002 or from Sept 2002-Sept 2003. For the sites with the longest follow-up (WVI and CARE) most beneficiary and control households have been followed during the same period. For sites with a shorter duration of follow-up, the duration has been set to be the same for beneficiaries and controls through further selection at the stage of analysis (see the nutritional impact section below), but the actual period may have differed.

Analyses conducted include cross-tabs for proportions with Chi-square tests for assessing whether differences between BL and EL within a group or between beneficiaries and controls at BL or at EL were significant; comparison of non-normally distributed values using non-parametric tests (Kruskal-Wallis and Mann-Whitney U-test); and logistic regression analysis to examine the impact of potentially confounding factors. P-values <0.05 were considered significant, but those <0.10 have also been reported when the n for the analysis was relatively small.

## **4. Findings**

### **4.1. Profile of TAP FFW beneficiaries and control group at baseline**

Tables 1-5 compare FFW beneficiaries with the control group on key socio-economic (SES) and nutrition indicators at the time they joined the FAM activity. The socio-economic indicators include maternal education, ownership of the *kartu keluarga* (family registration card), and household income in the previous month. The nutritional indicators include women's BMI and anemia, and child anemia, underweight, wasting, and stunting. The purpose of this section is to describe the appropriateness of targeting of the TAP FFW in reaching the poorest of the poor. Therefore the information in these tables represents all households, women, and children at baseline, regardless of date or duration of involvement in FAM. The number of cases and rates of malnutrition may vary slightly from the baseline data presented later in this report, which only represents women and children for which a follow-up measurement was also available.

#### 4.1.1. Baseline comparisons of TAP FFW implementation sites

##### 4.1.1.1. Baseline comparison in MCI site, Jakarta

In Jakarta, the control group was selected from a random sample of urban poor households via the HKI/GOI NSS (see methods section). TAP beneficiary women had less formal education and reported lower incomes, and their households were less likely to have a family registration card. The nutritional status of beneficiary and control women did not differ significantly. Higher levels of child anemia, underweight, wasting, and stunting were observed among beneficiary children compared to controls.

**Table 1. Baseline comparison in MCI site, Jakarta**

	Beneficiary	Control	p-value
Maternal education*	(n=4,364)	(n=2,637)	<0.001
% No education	23.0	3.5	
% Primary Education	58.6	43.9	
% Junior High	12.2	23.5	
% Senior High	6.0	26.7	
% Tertiary Education	0.2	2.4	
Owns the family card*	(n=4,565)	(n=2,648)	<0.001
% Yes	41.3	55.8	
Income in the previous month*	(n=4,521)	(n=2,046)	<0.001
% No income	4.1	0.4	
% 1 to 100,000 rupiah	8.1	1.2	
% 101,000 to 200,000 rupiah	16.2	3.9	
% 201,000 to 300,000 rupiah	15.7	9.5	
% 301,000 to 400,000 rupiah	15.0	11.0	
% more than 400,000 rupiah	40.9	73.9	
Women's BMI (kg/m <sup>2</sup> )	(n=4,065)	(n=2,486)	0.089
% Underweight (<18.5)	10.4	11.3	
% Normal (18.5-<25)	58.0	59.5	
% Overweight (>=25)	31.6	29.2	
Women's anemia (Hb<12.0g/dL)	(n=1,795)	(n=579)	0.312
% Anemic	30.4	28.2	



Child anemia (Hb<11.0g/dL)*	(n=2,172)	(n=696)	0.008
% Anemic	66.0	60.5	
Child underweight (WAZ<-2SD)*	(n=2,175)	(n=3,032)	<0.001
% Underweight	40.6	32.7	
Child wasting (WHZ<-2SD)*	(n=2,174)	(n=3,031)	0.036
% Wasted	9.8	8.1	
Child stunting (HAZ<-2SD)*	(n=2,143)	(n=3,032)	<0.001
% Stunted	35.5	26.1	

\*p<0.05

#### 4.1.1.2. Baseline comparison in WVI site, Surabaya

In Surabaya, the control group was selected from a random sample of urban poor households via the HKI/GOI NSS (see methods section). TAP beneficiary women had less formal education and reported lower incomes, and their households were less likely to have a family registration card. Beneficiary women had higher BMI, and similar levels of anemia as control women. Higher levels of child underweight, wasting, and stunting were observed among beneficiary children compared to controls.

**Table 2. Baseline comparison in WVI site, Surabaya**

	Beneficiary	Control	p-value
Maternal education*	(n=2,490)	(n=2,640)	<0.001
% No education	11.0	3.1	
% Primary Education	39.2	32.6	
% Junior High	21.5	25.4	
% Senior High	26.3	35.0	
% Tertiary Education	1.9	3.9	
Owns the family card*	(n=2,645)	(n=2,668)	<0.001
% Yes	72.1	49.3	
Income in the previous month*	(n=2,640)	(n=2,009)	<0.001
% No income	1.1	0.6	
% 1 to 100,000 rupiah	8.3	1.7	
% 101,000 to 200,000 rupiah	16.4	8.7	
% 201,000 to 300,000 rupiah	20.2	17.7	
% 301,000 to 400,000 rupiah	14.1	15.3	
% more than 400,000 rupiah	40.0	56.0	
Women's BMI (kg/m2)*	(n=2,268)	(n=2,494)	<0.001
% Underweight (<18.5)	9.7	12.2	
% Normal (18.5-<25)	56.4	63.0	
% Overweight (>=25)	33.9	24.7	
Women's anemia (Hb<12.0g/dL)	(n=1,097)	(n=875)	0.661
% Anemic	26.0	26.9	
Child anemia (Hb<11.0g/dL)	(n=907)	(n=1,009)	0.214

% Anemic	56.6	59.4	
Child underweight (WAZ<-2SD)*	(n=1,251)	(n=2,972)	<0.001
% Underweight	38.8	32.4	
Child wasting (WHZ<-2SD)*	(n=1,244)	(n=2,969)	0.035
% Wasted	13.7	11.4	
Child stunting (HAZ<-2SD)*	(n=1,248)	(n=2,950)	0.018
% Stunted	28.0	24.5	

\*p<0.05

#### 4.1.1.3. Baseline comparison in CWS site, Makassar

In Makassar, the control group was selected from a random sample of urban poor households via the HKI/GOI NSS (see methods section). TAP beneficiary women had less formal education and reported lower incomes, and their households were less likely to have a family registration card. The distribution of women's BMI was significantly different between beneficiaries and controls, whereby the beneficiary group had a larger proportion of underweight as well as of overweight women. Thus, a larger proportion of control women had a BMI in the appropriate range (not underweight and not overweight). A similar proportion of beneficiary and control women were anemic. There were also similar levels of child anemia, underweight, and wasting between the two groups, but a higher proportion of stunting among beneficiary children.

**Table 3. Baseline comparison in CWS site, Makassar**

	Beneficiary	Control	p-value
Maternal education*	(n=2,338)	(n=2,468)	<0.001
% No education	18.8	6.8	
% Primary Education	52.7	47.6	
% Junior High	16.0	23.6	
% Senior High	11.6	20.7	
% Tertiary Education	0.9	1.4	
Owns the family card*	(n=2,401)	(n=2,488)	<0.001
% Yes	33.0	39.1	
Income in the previous month*	(n=2,400)	(n=2,485)	<0.001
% No income	3.4	1.7	
% 1 to 100,000 rupiah	10.5	2.8	
% 101,000 to 200,000 rupiah	20.3	8.3	
% 201,000 to 300,000 rupiah	23.3	16.9	
% 301,000 to 400,000 rupiah	12.9	18.5	
% more than 400,000 rupiah	29.7	51.8	
Women's BMI (kg/m2)*	(n=2,072)	(n=2,218)	0.003
% Underweight (<18.5)	14.9	13.8	
% Normal (18.5-<25)	61.6	66.4	
% Overweight (>=25)	23.5	19.8	
Women's anemia (Hb<12.0g/dL)	(n=1,160)	(n=927)	0.664

% Anemic	29.2	30.1	
Child anemia (Hb<11.0g/dL)	(n=1,704)	(n=1,442)	0.361
% Anemic	57.0	58.6	
Child underweight (WAZ<-2SD)	(n=1,704)	(n=3,018)	0.182
% Underweight	47.2	45.2	
Child wasting (WHZ<-2SD)	(n=1,699)	(n=3,006)	0.146
% Wasted	9.6	10.9	
Child stunting (HAZ<-2SD)*	(n=1,699)	(n=3,013)	0.006
% Stunted	44.6	40.5	

\*p<0.05

#### 4.1.1.4. Baseline comparison in CRS site, Central Java and Yogyakarta

In Central Java and Yogyakarta, controls were selected by applying the same selection criteria (village and household level) of the CRS TAP program. CRS assisted HKI in identifying eligible villages, and HKI staff applied CRS' criteria for selecting households from those villages. Control villages were separate from TAP villages. TAP beneficiary women had more formal education, reported higher incomes, and their households were more likely to have a family registration card. Beneficiary women had a higher BMI, and similar levels of anemia as control women. Similar levels of child underweight and wasting were observed between groups, but a higher proportion of child anemia and stunting was observed in the control group. This means that the beneficiaries in CRS were slightly better off than the controls that had been selected using the same criteria. However, both beneficiaries and controls were of lower socio-economic status compared to the random population sample that was selected from the same area by the NSS, and therefore still considered as poor.

**Table 4. Baseline comparison in CRS site, Central Java and Yogyakarta**

	Beneficiary	Control	p-value
Maternal education*	(n=4,145)	(n=2,226)	<0.001
% No education	26.2	32.9	
% Primary Education	62.8	59.4	
% Junior High	7.9	6.1	
% Senior High	2.9	1.5	
% Tertiary Education	0.1	0.0	
Owns the family card*	(n=4,271)	(n=2,310)	<0.001
% Yes	64.2	53.3	
Income in the previous month*	(n=4,271)	(n=2,305)	<0.001
% No income	1.0	1.5	
% 1 to 100,000 rupiah	40.3	51.1	
% 101,000 to 200,000 rupiah	33.2	30.1	
% 201,000 to 300,000 rupiah	12.0	9.7	
% 301,000 to 400,000 rupiah	5.3	3.0	
% more than 400,000 rupiah	8.2	4.6	
Women's BMI (kg/m2)*	(n=3,970)	(n=2,109)	0.004

% Underweight (<18.5)	16.1	19.4	
% Normal (18.5-<25)	71.2	68.8	
% Overweight (>=25)	12.6	11.7	
Women's anemia (Hb<12.0g/dL)	(n=1,282)	(n=748)	0.796
% Anemic	20.9	21.4	
Child anemia (Hb<11.0g/dL)*	(n=1,517)	(n=883)	0.034
% Anemic	43.8	48.2	
Child underweight (WAZ<-2SD)	(n=1,522)	(n=882)	0.242
% Underweight	28.6	30.8	
Child wasting (WHZ<-2SD)	(n=1,494)	(n=873)	0.999
% Wasted	5.2	5.2	
Child stunting (HAZ<-2SD)*	(n=1,494)	(n=877)	0.005
% Stunted	40.3	46.2	

\*p<0.05

#### 4.1.1.5. Baseline comparison in CARE site, East Kalimantan

In East Kalimantan, controls were selected by applying the same selection criteria (village and household level) of the CARE TAP program. CARE assisted HKI in identifying eligible villages, and HKI staff applied CARE's criteria for selecting households within those villages. Control villages were separate from TAP villages. TAP beneficiary women had less formal education and reported lower incomes, and their households were less likely to have a family registration card. The distribution of BMI was similar between beneficiaries and controls, but lower levels of anemia were observed among beneficiary women. Levels of child anemia, underweight, wasting, and stunting were similar between groups.

**Table 5. Baseline comparison in CARE site, East Kalimantan**

	Beneficiary	Control	p-value
Maternal education*	(n=2,274)	(n=2,228)	<0.001
% No education	18.8	16.2	
% Primary Education	70.4	67.2	
% Junior High	8.4	11.1	
% Senior High	2.3	5.1	
% Tertiary Education	0.1	0.4	
Owns the family card*	(n=2,356)	(n=2,260)	<0.001
% Yes	61.4	68.7	
Income in the previous month*	(n=2,275)	(n=2,213)	<0.001
% No income	1.3	0.7	
% 1 to 100,000 rupiah	19.0	13.4	
% 101,000 to 200,000 rupiah	28.3	22.3	
% 201,000 to 300,000 rupiah	19.5	18.4	
% 301,000 to 400,000 rupiah	12.3	12.3	
% more than 400,000 rupiah	19.6	32.9	

Women's BMI (kg/m <sup>2</sup> )	(n=2,007)	(n=1,881)	0.210
% Underweight (<18.5)	12.8	11.1	
% Normal (18.5-<25)	69.4	70.1	
% Overweight (>=25)	17.8	18.9	
Women's anemia (Hb<12.0g/dL)*	(n=926)	(n=937)	0.003
% Anemic	36.0	42.7	
Child anemia (Hb<11.0g/dL)	(n=1,129)	(n=1,168)	0.055
% Anemic	55.7	59.7	
Child underweight (WAZ<-2SD)	(n=1,106)	(n=1,160)	0.673
% Underweight	44.8	44.0	
Child wasting (WHZ<-2SD)	(n=1,076)	(n=1,152)	0.687
% Wasted	14.2	13.6	
Child stunting (HAZ<-2SD)	(n=1,067)	(n=1,125)	0.939
% Stunted	41.7	41.9	

\*p<0.05

#### 4.1.2. Summary of baseline comparison

Overall, the socio-economic and child nutrition situation was slightly worse among beneficiaries than controls. However, beneficiary women had higher BMIs than control women at baseline. The prevalence of maternal anemia was not different among beneficiaries and controls in 4 sites, but was lower among beneficiaries in East Kalimantan (CARE). Only in Central Java/Yogyakarta was the situation of beneficiaries consistently better than that of controls.

**Table 6. Baseline comparison of FAM participants in all sites**

	Beneficiary	Control	p-value
Maternal education*	(n=15,611)	(n=12,199)	<0.001
% No education	20.7	11.8	
% Primary Education	57.5	49.3	
% Junior High	12.6	18.5	
% Senior High	8.7	18.7	
% Tertiary Education	0.5	1.7	
Owns the family card	(n=16,238)	(n=12,374))	0.069
% Yes	54.0	52.9	
Income in the previous month*	(n=16,107)	(n=11,058)	<0.001
% No income	2.3	1.0	
% 1 to 100,000 rupiah	18.6	14.5	
% 101,000 to 200,000 rupiah	23.1	14.9	
% 201,000 to 300,000 rupiah	17.1	14.5	
% 301,000 to 400,000 rupiah	11.6	12.1	
% more than 400,000 rupiah	27.4	43.0	

Women's BMI (kg/m2)*	(n=14,382)	(n=11,188)	<0.001
% Underweight (<18.5)	12.9	13.5	
% Normal (18.5-<25)	63.5	65.2	
% Overweight (>=25)	23.6	21.3	
Women's anemia (Hb<12.0g/dL)*	(n=6,260)	(n=4,066)	0.019
% Anemic	28.3	30.4	
Child anemia (Hb<11.0g/dL)	(n=7,429)	(n=5,198)	0.363
% Anemic	56.7	57.5	
Child underweight (WAZ<-2SD)*	(n=7,758)	(n=11,064)	<0.001
% Underweight	40.0	37.1	
Child wasting (WHZ<-2SD)	(n=7,687)	(n=11,031)	0.986
% Wasted	10.1	10.1	
Child stunting (HAZ<-2SD)*	(n=7,651)	(n=10,997)	<0.001
% Stunted	38.1	32.8	

\*p<0.05

## 4.2. Nutritional impact of FFW

Because the programs implemented by the different NGOs varied considerably in duration, the length of follow-up for the beneficiaries also varied among the sites. For each site, a selection was made among controls and among beneficiaries in order to have a similar duration of follow-up for both groups. The mean duration of follow-up, for beneficiaries and controls, as well as the number of cases contributing to the analyses is shown in table 6 below.

Table 6. The duration of follow-up for each site and the number of underfives and mothers that contributed to the analyses, per group.

Site	Duration of follow-up (mo)	Underfives Controls (n) [n for Hb]	Underfives Beneficiaries (n) [n for Hb]	Mothers Controls (n) [n for Hb]	Mothers Beneficiaries (n) [n for Hb]
MCI	6-8	1715 [379]	1015 [981]	1129 [279]	2126 [949]
WVI	18-22	1440 [161]	685 [460]	1462 [178]	1375 [410]
CWS	9-10	920 [508]	1100 [1052]	933 [516]	1564 [993]
CRS	3.5-5	230 [218]	1010 [967]	728 [274]	3334 [1108]
CARE	16	633 [600]	506 [482]	1224 [662]	1215 [585]

Due to the different duration of follow-up as well as to the difference in the programs implemented at the different sites, the analyses have been done for each site separately and will be presented by site. The length of follow-up should be referred to when interpreting the results, especially for changes of anthropometry among children.

Before presenting the results per site, we will discuss the different indicators included in this section of the report as well as the way they have been analyzed and presented. For all indicators where a comparison was made between BL and last measurement or BL and intervention period, data were analyzed only for subjects that contributed data to both time points (thus a paired analyses, also for prevalence data). For children, data were analyzed for different age groups, because of the large differences among age groups in energy intake,

changes of anthropometry etc. All child age group categories indicated in the text and in the graphs of the this report refer to the age of the child at the BL measurement.

#### 4.2.1. *Indicators of nutritional impact*

##### 4.2.1.1. Energy intake

Energy intake was collected with a 24-hr recall questionnaire, both for mothers as well as children. BL data are based on one interview, while intervention data are the median value for all interviews conducted during the intervention period.

##### 4.2.1.2. Mother's vitamin A intake from retinol-rich foods

Vitamin A intake data were collected with the 24-VASQ method which assesses vitamin A intake semi-quantitatively. Because the main interest was the quality of the diet, in particular micronutrient-rich foods, changes of vitamin A intake from retinol-rich foods (animal foods and fortified foods) are presented. BL data are based on one interview, while intervention data are the median value for all interviews conducted during the intervention period. Among children, in all sites, vitamin A intake from retinol-rich foods changed very little and showed no differences among controls and beneficiaries. Therefore, only mother's data are reported.

##### 4.2.1.3. Participation in complementary feeding programs and *posyandu* attendance

For all children, information was collected on whether they participated in a complementary feeding program. This information was collected at each interview and analyzed for the intervention period. Data shown present participation at any time during the intervention period. For the beneficiary children, the complementary feeding program that they participated in was largely that of the TAP NGO, mostly distribution of Wheat-Soya-Blend (WSB). For the control children it was not the program of the TAP NGO, but in most cases a government program.

Questions about the household's last *posyandu* visit were asked at each interview. Data shown are about recent visits (in the previous month). For the BL, data indicate whether the household visited the *posyandu* in the preceding month, while for the intervention period 'INT-all' indicates that they had gone in the month preceding each interview, while 'INT-some' indicates that they went in the month preceding the interview for some, but not all, interviews. For sites where duration of follow-up was relatively short, mostly limited to one interview, the proportion 'INT-some' is very small. This is particularly the case for CRS. Note that it was assumed that when the household visited the *posyandu*, all under five year old children joined.

##### 4.2.1.4. Diarrhea prevalence

At each interview, mothers were asked whether any of the under five children or she herself had suffered from diarrhea (3 or more loose stools in 24 hrs) in the week preceding the interview. BL data refer to one week (preceding the BL interview), while data on the intervention period refer to the week preceding any of the interviews. Thus, for most sites, prevalence during the intervention period is higher because they were interviewed more often. Similarly, for sites with a longer period of follow-up, the prevalence of diarrhea during the intervention is likely to be higher, because they were interviewed more often.

#### 4.2.1.5. Child anthropometry

Changes of underweight, stunting and wasting were examined for different age groups and for all sites. Because very few changes were found for underweight and stunting, those data are not included in the report. For wasting, the prevalence at BL and EL for different age groups is shown, per site. Wasting occurs particularly when children make the transition from being exclusively breastfed to also consuming complementary foods. The prevalence of wasting is usually highest between 6-23 mo of age. Therefore, it is expected to see an increase among that age group. The main issue to focus on when interpreting the results is whether there is a difference of this increase between beneficiaries and controls.

#### 4.2.1.6. Maternal BMI

Maternal BMI (weight / height<sup>2</sup>) was calculated based on weight at each measurement and height as averaged from all measurements made on the particular woman. The latter was done in order to make sure that small changes of weight would not go unnoticed or be interpreted as much larger, because of a slight difference of the height measurement. Changes of BMI between BL and EL are shown as well as changes of proportions of low BMI (thinness) and high BMI (overweight). For low BMI, two cut-off levels were used <18.5 kg/m<sup>2</sup> and <20 kg/m<sup>2</sup>. The first one is the one generally used for developing countries and is what WHO uses for defining food insecurity, while the second one is usually used for developed countries.

#### 4.2.1.7. Anemia and Hb changes

Hemoglobin concentration (Hb) was assessed by taking blood by fingerprick and measuring it with the Hemocue. For children, Hb reflects their iron status from the age of 3 months onwards. Therefore, data on younger infants have not been shown. For children the cut-off for anemia is 11 g/dL, while for non-pregnant mothers it is 12 g/dL. Changes of Hb between BL and EL are shown, as well as changes of the proportion that was anemic.

### 4.2.2. Nutritional impact in TAP FFW implementation sites

#### 4.2.2.1. Nutritional impact in MCI site

##### 4.2.2.1.1. Energy intake (Figure 1, p22; Figure 6, p27)

Among children aged 12 mo and older, energy intake was consistently higher among controls as compared to beneficiaries. Among mothers, energy intake was also slightly higher among controls as compared to beneficiaries. In both groups intake was slightly lower during the intervention than at BL.

##### 4.2.2.1.2. Mother's vitamin A intake from retinol-rich foods (Figure 7, p28)

Among mothers, vitamin A intake from retinol-rich foods increased slightly in the intervention group but was much higher in the control group.

##### 4.2.2.1.3. Participation in complementary feeding programs and *posyandu* attendance (Figure 8, p29; Figure 13, p34)

Both among controls and beneficiaries there was little participation in complementary feeding programs (8-17%). *Posyandu* visiting behavior changed in neither of the two groups.



#### 4.2.2.1.4. Diarrhea prevalence (Figure 18, p39; Figure 23, p44)

Prevalence of diarrhea in the week preceding the interview (or interviews for the intervention period) was higher among beneficiaries than controls, and this was observed among children as well as mothers.

#### 4.2.2.1.5. Child anthropometry (Figure 24, p45)

Due to higher energy intake and less diarrhea among controls, anthropometry improved more among controls, especially among those aged 36-48 mo. However, there was a positive impact on wasting among beneficiary children aged 0-11 mo old. Their prevalence of wasting did not increase while it did among control children of the same age.

#### 4.2.2.1.6. Maternal BMI (Figure 30, p51; Figure 31, p52; Figure 32, p53; Figure 33, p54)

BMI at BL was higher among beneficiaries, but it increased more among the controls. Prevalence of thinness and overweight remained unchanged. Prevalence of overweight was 28-35% and higher among the beneficiaries.

#### 4.2.2.1.7. Anemia and Hb changes (Figure 34, p55; Figure 39, p60; Figure 40, p61)

Among children aged 24-59 mo, there was more improvement of Hb among beneficiaries than controls, however this larger improvement occurred only among those that were non-anemic at baseline.

Hb of control mothers decreased significantly (12.6 to 12.3 g/dL), while it remained the same among beneficiary mothers (12.5 g/dL).

#### 4.2.2.2. Nutritional impact in WVI site

##### 4.2.2.2.1. Energy intake (Figure 2, p23; Figure 6, p22)

Among children aged 0-23 mo, energy intake increased between BL and EL because they grew older. Among control, but not beneficiary, children intake also increased among children aged 24-35 mo.

Among mothers, there was no difference of intake among controls and beneficiaries. Among the controls intake decreased slightly between BL and EL.

##### 4.2.2.2.2. Mother's vitamin A intake from retinol-rich foods (Figure 7, p28)

Vitamin A intake from retinol-rich foods was not significantly different among controls and beneficiaries, and there was a slight but not significant trend for improvement in both groups.

##### 4.2.2.2.3. Participation in complementary feeding programs and *posyandu* attendance (Figure 9, p30; Figure 14, p35)

Many more beneficiary children participated in complementary feeding (upto 76% vs 15-30%). However, there was no measurable difference of energy intake between the two groups. There was a slight improvement of *posyandu* visiting among beneficiaries, while at BL fewer beneficiary households had visited in the previous month as compared to controls, it was equal during the intervention.

#### 4.2.2.2.4. Diarrhea prevalence (Figure 19, p40; Figure 23, p44)

The difference in the prevalence of diarrhea between controls and beneficiaries did not change consistently. Hence, there was no impact of the program on diarrhea among children. For mothers, the prevalence of diarrhea was higher among beneficiaries than controls. Note that the apparently high prevalence during the intervention is partly due to the fact that the bar presents diarrhea in the week preceding any of the interviews during the intervention period and the number of interviews was highest for WVI and CARE because the intervention period was longest.

#### 4.2.2.2.5. Child anthropometry (Figure 25, p46)

While wasting prevalence among control children aged 6-11 mo increased, it reduced among the beneficiaries. Otherwise, there was no impact on anthropometric indicators.

#### 4.2.2.2.6. Maternal BMI (Figure 30, p51; Figure 31, p52; Figure 32, p53; Figure 33, p54)

BMI at BL was higher among beneficiaries, but it increased more among the controls. In line with the increase of BMI in both groups, the prevalence of thinness declined and the prevalence of overweight (BMI>25 kg/m<sup>2</sup>) increased. These changes were not different between controls and beneficiaries. It should be noted that the prevalence of overweight, 34-41% at EL, was highest among all sites.

#### 4.2.2.2.7. Anemia and Hb changes (Figure 35, p56; Figure 39, p60; Figure 40, p61)

The prevalence of anemia among children aged 24-59 mo decreased among beneficiary children but not among control children.

Among mothers, Hb was higher among the beneficiaries and tended to decrease more among the controls. This resulted in an increase of the prevalence of anemia among the controls, but not among the beneficiaries.

#### 4.2.2.3. Nutritional impact in CWS site

##### 4.2.2.3.1. Energy intake (Figure 3, p24; Figure 6, p27)

Among control children, energy intake increased among those aged 0-23 mo, while for beneficiary children it increased among those aged 0-48 mo. And while it decreased among control children aged 48-59 mo, it appeared to increase among beneficiary children of the same age. At BL control children had a higher energy intake, but at EL the gap with the beneficiary children had become smaller.

Mothers' energy intake at baseline was slightly higher among the controls, but then increased somewhat among the beneficiaries and was no longer different at EL.

##### 4.2.2.3.2. Mother's vitamin A intake from retinol-rich foods (Figure 7, p28)

Vitamin A intake from retinol-rich foods increased, both among control as well as beneficiary mothers.

#### 4.2.2.3.3. Participation in complementary feeding programs and *posyandu* attendance (Figure 10, p31; Figure 14, p35)

Many more beneficiary kids participate in complementary feeding (upto 77% vs 15-40%). Only among beneficiary children aged 6-11 mo was there a difference of energy intake among those that did and those that did not participate in the complementary feeding program.

At BL, there was no difference in the proportion of children whose household had visited the *posyandu* in the previous month among controls and beneficiaries. However, during the intervention, more beneficiary children had recently visited the *posyandu* as compared to controls.

#### 4.2.2.3.3. Diarrhea prevalence (Figure 20, p41; Figure 23, p44)

The BL prevalence of diarrhea among children was very high. The difference of diarrhea prevalence at BL, which was lower among controls as compared to beneficiaries, became slightly smaller during the intervention. Also for mothers it was found that the prevalence of diarrhea was higher among beneficiaries than controls, at BL as well as during the intervention

#### 4.2.2.3.4. Child anthropometry (Figure 26, p47)

A larger reduction of the prevalence of wasting was observed among 12-23 mo old beneficiary children as compared to controls.

#### 4.2.2.3.5. Maternal BMI (Figure 30, p51; Figure 31, p52; Figure 32, p53; Figure 33, p54)

BMI at BL was slightly higher among the beneficiaries as compared to the controls. The prevalence of overweight increased in both groups with approx 4%.

#### 4.2.2.3.6. Anemia and Hb changes (Figure 36, p57; Figure 39, p60; Figure 40, p61)

No impact was observed on Hb of children. Among mothers, beneficiaries had a slightly higher Hb at BL ( $p < 0.10$ ), and the prevalence of anemia increased both among beneficiaries as well as controls.

#### 4.2.2.4. Nutritional impact in CRS site

##### 4.2.2.4.1. Energy intake (Figure 4, p25; Figure 6, p22)

Energy intake increased between BL and EL among control children aged 0-5 mo and among beneficiary children aged 0-23 mo. Among children aged 24-59 mo, energy intake tended to decrease. This was significant for beneficiary children aged 36-59. Energy intake was lowest among all sites.

Among mothers, energy intake also decreased between BL and EL. At BL, energy intake was slightly higher among controls.

##### 4.2.2.4.2. Mother's vitamin A intake from retinol-rich foods (Figure 7, p28)

Mothers' vitamin A intake from retinol-rich foods was very low, <50% had any vitamin A from retinol-rich foods in the previous day. There were no differences among controls and beneficiaries.

#### 4.2.2.4.3. Participation in complementary feeding programs and *posyandu* attendance (Figure 11, p32; Figure 16, p37)

Upto 56% of beneficiary and upto 40% of control children participated in complementary feeding, but there was no difference of energy intake between participants and non-participants. Regular *posyandu* visits were made by most of the households and there were no differences among beneficiaries and controls.

#### 4.2.2.4.4. Diarrhea prevalence (Figure 21, p42; Figure 23, p44)

The CRS site had the lowest prevalence of diarrhea among the five sites. There appeared to be a slight increase among beneficiaries as compared to controls. Also among mothers, the prevalence at CRS was lowest among the five sites.

#### 4.2.2.4.5. Child anthropometry (Figure 27, p48; Figure 29, p50)

The CRS site showed the lowest prevalence of wasting among the five sites and there was not much impact on wasting prevalence. However, the weight-for-height Z-score decreased among all age groups, but less so among the beneficiaries. Thus, there appeared to be some protection against wasting among beneficiaries aged 0-48 mo.

#### 4.2.2.4.6. Maternal BMI (Figure 30, p51; Figure 31, p52; Figure 32, p53; Figure 33, p54)

BMI was lowest among all sites. It was higher among beneficiaries than controls and increased among the beneficiaries but not among the controls. The prevalence of thinness (BMI<18.5 kg/m<sup>2</sup>) was highest among all sites, 22% among controls and 15% among beneficiaries and did not change significantly in either group. Similarly, the prevalence of overweight was lowest among all sites and did not change significantly either.

#### 4.2.2.4.7. Anemia and Hb changes (Figure 37, p58; Figure 39, p60; Figure 40, p61)

There were no significant changes of anemia prevalence among children. Among mothers, findings were contradictory. The prevalence of anemia was lower among the beneficiaries and declined significantly amongst them (from 21% to 17%). However, Hb was observed to decline slightly. Based on the decrease of anemia prevalence we would have expected an increase of Hb. This finding means that overall, and particularly among women that were not anemic at BL, Hb declined somewhat but not so much that more women became anemic. Of the mothers that were anemic at BL, a few became non-anemic at EL. However, all differences were very small.

#### 4.2.2.5. Nutritional impact in CARE site

##### 4.2.2.5.1. Energy intake (Figure 5, p26; Figure 6, p27)

Energy intake increased among all children aged 0-23 mo because they became older (16-17 mo of follow-up). Among children aged 36-59 mo, energy intake at BL was higher among controls as compared to beneficiaries, but this difference no longer existed at EL. Among mothers, energy intake remained unchanged in both groups.

##### 4.2.2.5.2. Mother's vitamin A intake from retinol-rich foods (Figure 7, p28)

Vitamin A intake from retinol-rich foods increased between BL and EL, both among controls as well as beneficiaries.

#### 4.2.2.5.3. Participation in complementary feeding programs and *posyandu* attendance (Figure 12, p33; Figure 17, p38)

Many more beneficiary children participated in complementary feeding as compared to control children (upto 74% vs. 5-20%). But energy intake was not different among beneficiaries and controls. Both at BL and during the intervention, beneficiary households visited the *posyandu* more regularly than the controls.

#### 4.2.2.5.4. Diarrhea prevalence (Figure 22, p43; Figure 23, p44)

Diarrhea prevalence was higher among beneficiary than control children, both at BL and during the intervention. Among mothers, diarrhea prevalence was relatively low and at BL it was higher among the beneficiaries as compared to the controls.

#### 4.2.2.5.5. Child anthropometry (Figure 28, p49)

The prevalence of wasting among children aged 0-11 mo increased very much, upto 30% among controls. This increase was lower among beneficiary children (upto 20%) as compared to control children (upto 30%) and this trend existed till 23 mo of age.

#### 4.2.2.5.6. Maternal BMI (Figure 30, p51; Figure 31, p52; Figure 32, p53; Figure 33, p54)

There was no difference of BMI among controls and beneficiaries and it increased in both groups.

#### 4.2.2.5.7. Anemia and Hb changes (Figure 38, p59; Figure 39, p60; Figure 40, p61)

The prevalence of anemia among children aged 3-24 mo decreased, among controls as well as beneficiaries.

The prevalence of anemia among mothers was highest among all sites and declined significantly among the controls, from 44 to 36%. Contrary to the other sites, Hb increased, in both groups. The FFW program did not have an impact on Hb neither among children nor mothers.

### 4.2.3. General observations on nutrition impact

#### 4.2.3.1. Energy intake

Energy intake of children increased, which is in accordance with the fact that they became older. Among mothers, it tended to decline slightly. The absolute level of intake appears rather low. Therefore, most attention should be paid to the similarity of intake between controls and beneficiaries and the virtual absence of changes between BL and EL. In conclusion, there were no noteworthy changes of energy intake related to the FFW programs.

#### 4.2.3.2. Mother's vitamin A intake from retinol-rich foods

Mother's vitamin A intake from retinol-rich foods tended to increase in all sites and both among controls and beneficiaries. This may reflect recovery from the crisis.

#### 4.2.3.3. Participation in complementary feeding programs and *posyandu* attendance

In three sites (WVI, CWS and CARE) a large proportion of beneficiary children participated in the complementary feeding program of the TAP-NGO (approx 70% as compared to 10-

20% of control children that participated in other complementary feeding programs). However, this does not appear to have increased their energy intake.

The proportion of children whose households regularly visited the *posyandu* increased in two sites (WVI and CWS). The sites where households visited the least were in Jakarta and Kalimantan.

#### 4.2.3.4. Diarrhea prevalence

Prevalence of diarrhea was higher among beneficiaries than controls, both among children and mothers. This may reflect appropriate selection of beneficiaries. None of the programs, except CWS, seems to have made an impact on diarrhea because of the persistence of the difference between controls and beneficiaries. Among beneficiary children at the CWS site, the difference of diarrhea prevalence between beneficiaries and controls was smaller during the intervention as compared to BL.

#### 4.2.3.5. Child anthropometry

All sites showed a smaller increase of wasting (or decrease of WH Z-score for CRS) among beneficiary infants or young children as compared to controls (MCI 0-11 mo, WVI 6-11 mo, CWS 12-23 mo, CRS 0-47 mo, CARE 0-23 mo). Impact observed on underweight and stunting was minimal and not consistent.

#### 4.2.3.6. Maternal BMI

BMI was higher among beneficiaries than controls and over the intervention period it increased in almost all sites and groups. Prevalence of thinness ( $BMI < 18.5 \text{ kg/m}^2$ ) declined only among WVI controls. When the cut-off for thinness was defined at a higher level, as it is used in developed countries ( $BMI < 20 \text{ kg/m}^2$ ), the prevalence also declined among WVI beneficiaries and CWS controls. Thus, the program had very little impact on reducing thinness. However, at the same time there was a significant increase of the prevalence of overweight in three sites (WVI, CWS, CARE). This was not program related, because there was no difference between controls and beneficiaries, but may indicate recovery from the crisis. However, overweight is undesirable and associated with other health risks such as cardiovascular disease and diabetes.

#### 4.2.3.7. Anemia and Hb changes

Among children at the MCI and the WVI sites, a positive impact on Hb was found among beneficiary children aged 24-59 mo as compared to control children of the same age. Among mothers, Hb at BL was higher among beneficiaries in the CWS, CRS and CARE sites. Hb decreased in 3 sites (MCI, WVI, CRS) and increased in one (CARE). Decrease of Hb was larger among MCI controls than beneficiaries, and the same trend (ns) was observed for WVI and CRS. Prevalence of anemia increased among the women in the urban poor sites, but not among the MCI and WVI beneficiaries. Thus, participating in the FFW program seems to have protected these MCI and WVI beneficiaries to some extent. In the rural areas the prevalence of anemia declined, for CRS slightly more among the beneficiaries and for CARE more among the controls.

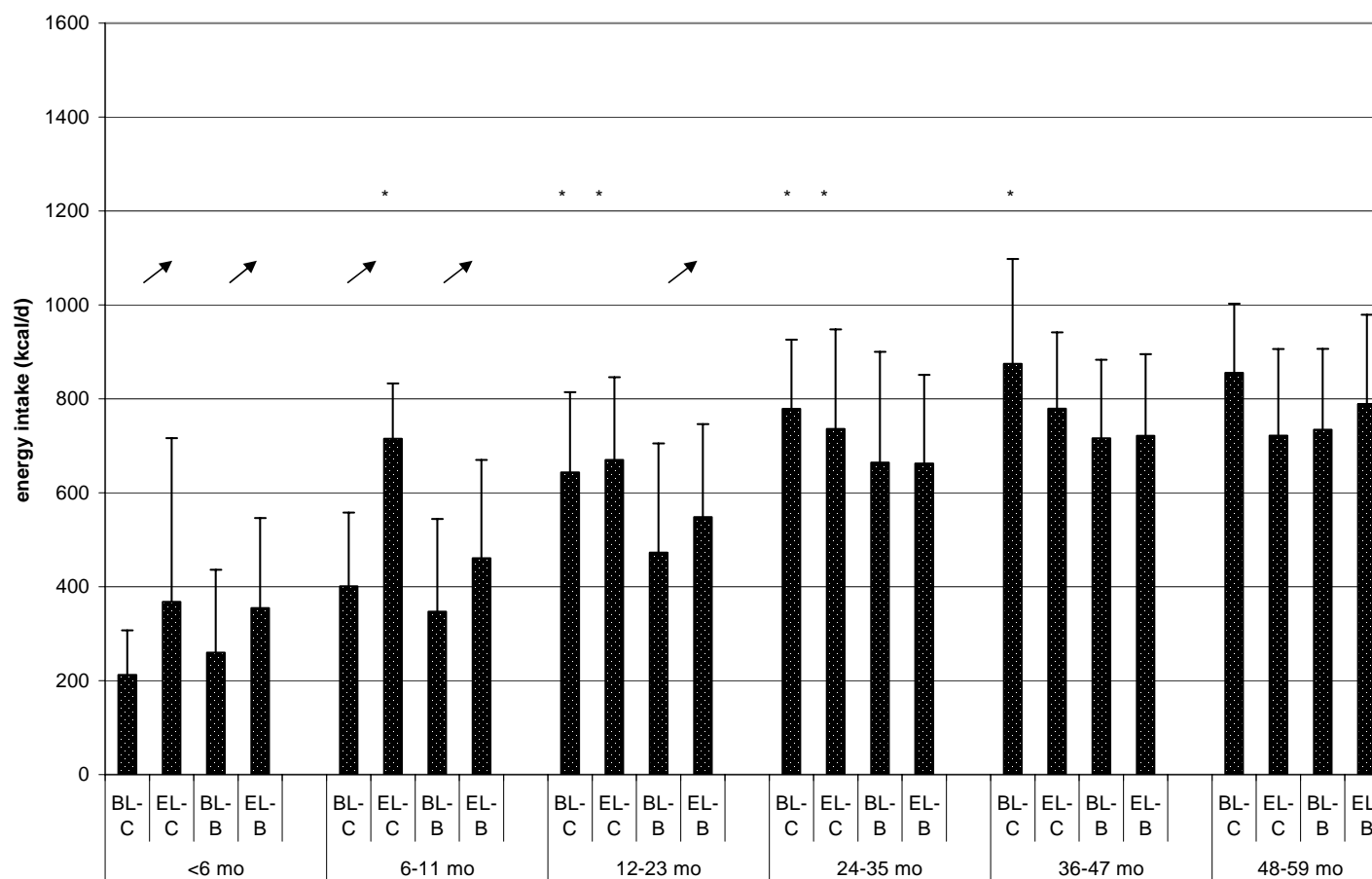
Thus, there appears to have been a slight program-related impact on Hb among MCI and WVI beneficiaries, mothers as well as children. However, the impact is small and the prevalence of anemia warrants more specific interventions addressing this problem more directly.

## **Figures for findings on nutritional impact**

(Per site, grouped by indicator)

**Figure 1. MCI: Energy intake (kcal/d) at baseline (BL) and at endline (EL) for controls (C) and beneficiaries (B) by age at baseline.**

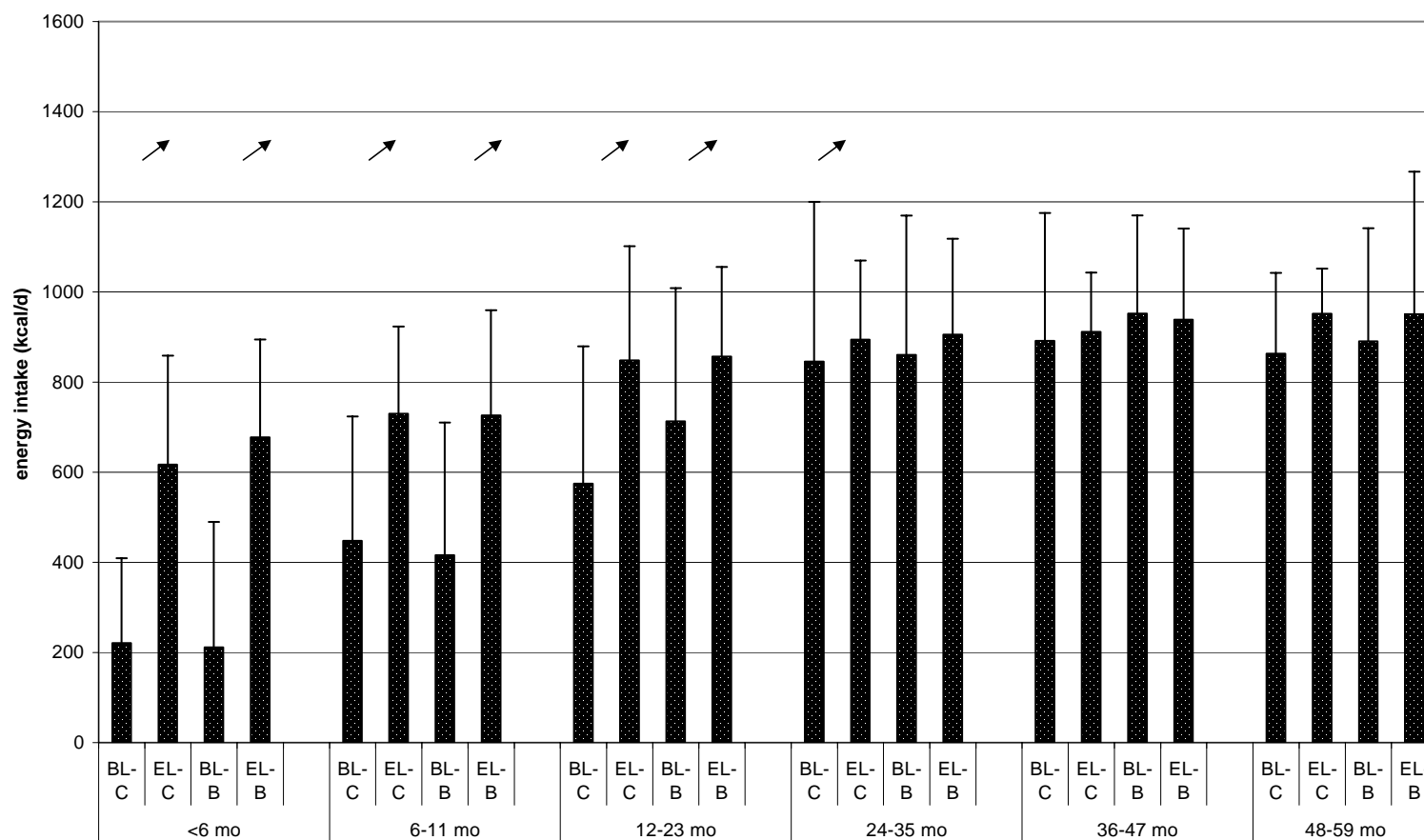
Bars indicate median and 75<sup>th</sup> percentile. Arrows indicate a significant change between BL and EL within a group ( $p < 0.05$ , Wilcoxon test). Stars indicate a significant difference between two groups at BL or EL ( $*p < 0.05$ , Mann-Whitney U-test).





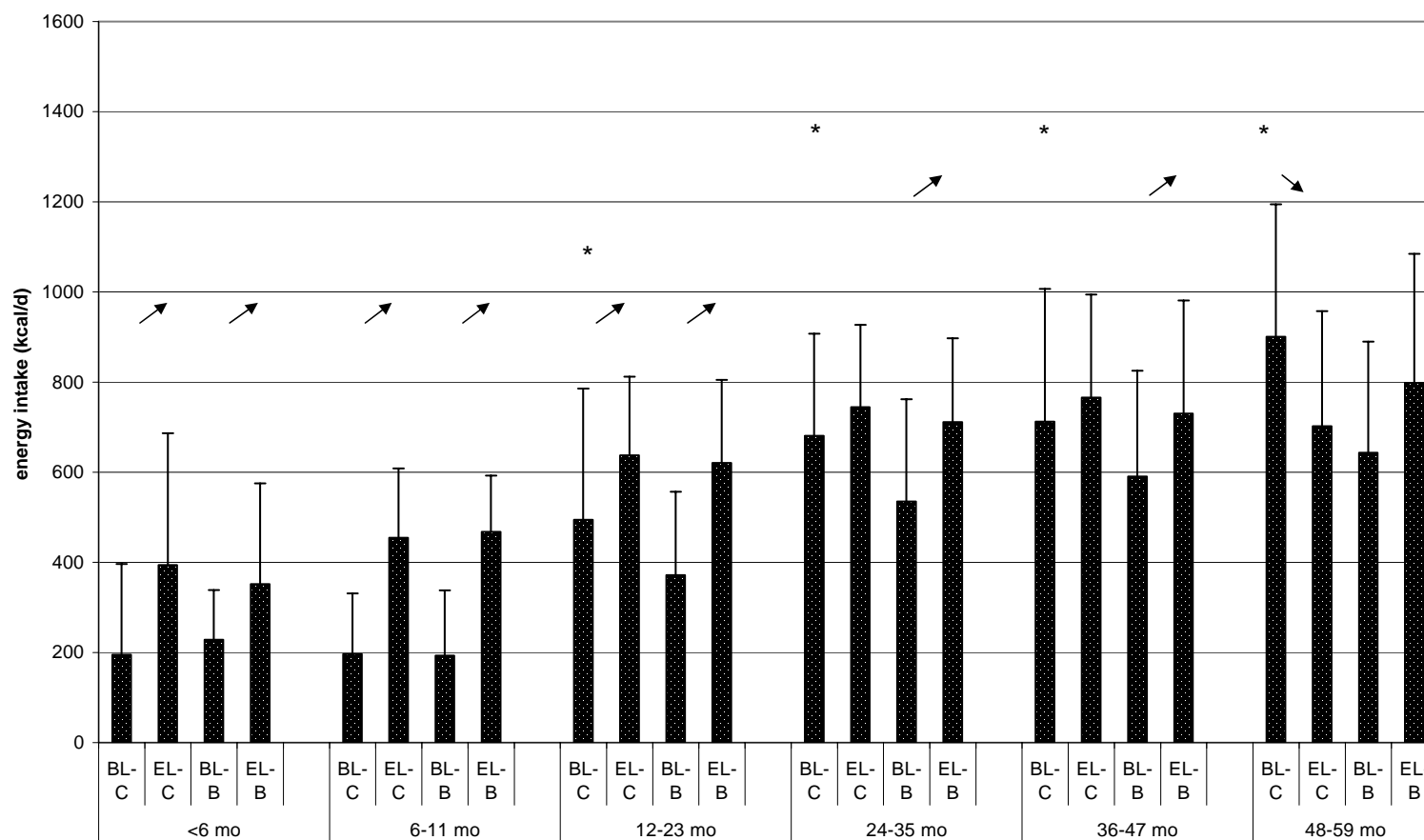
**Figure 2. WVI: Energy intake (kcal/d) at baseline (BL) and at endline (EL) for controls (C) and beneficiaries (B) by age at baseline.**

Bars indicate median and 75<sup>th</sup> percentile. Arrows indicate a significant change between BL and EL within a group ( $p < 0.05$ , Wilcoxon test). Stars indicate a significant difference between two groups at BL or EL ( $*p < 0.05$ , Mann-Whitney U-test).



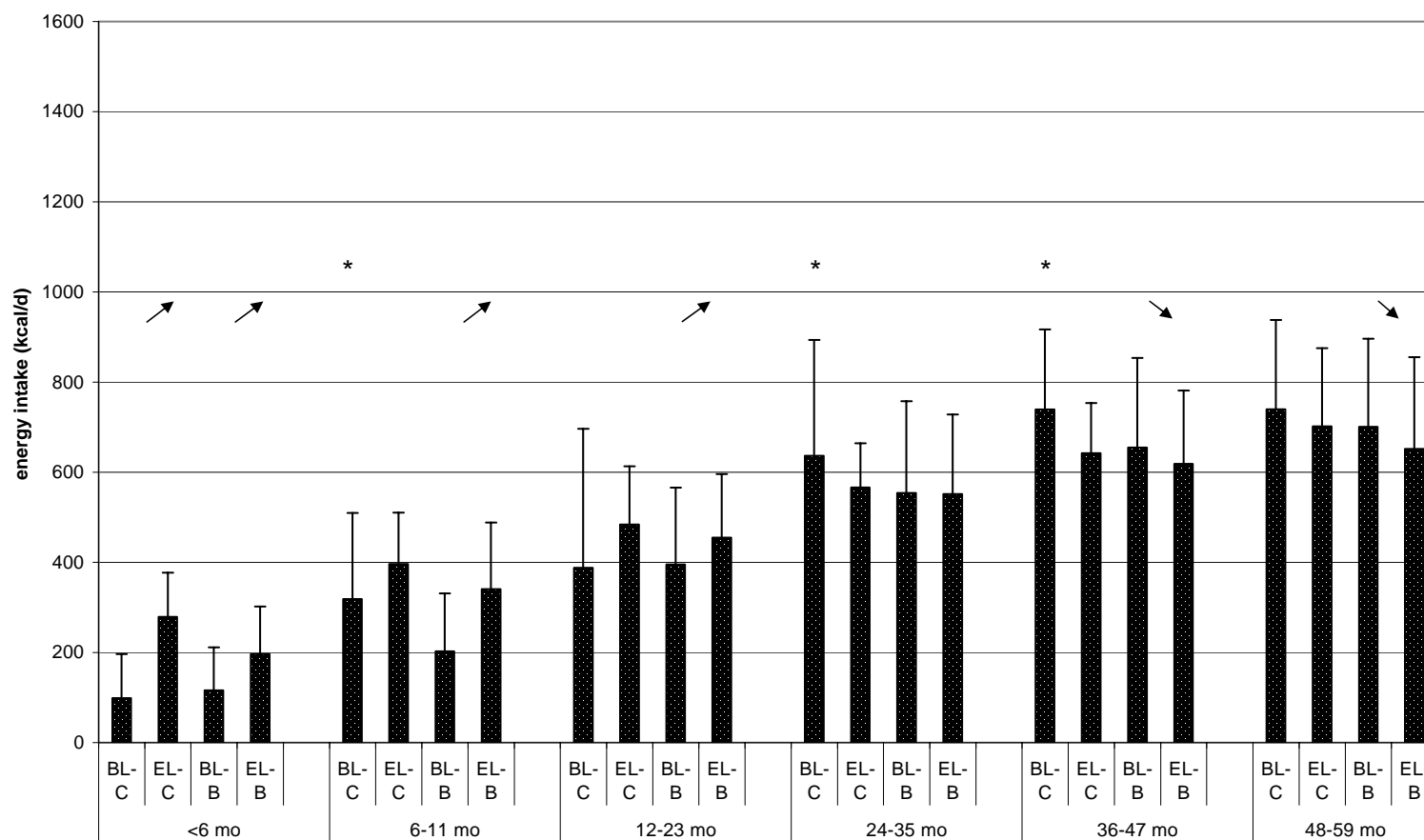
**Figure 3. CWS: Energy intake (kcal/d) at baseline (BL) and at endline (EL) for controls (C) and beneficiaries (B) by age at baseline.**

Bars indicate median and 75<sup>th</sup> percentile. Arrows indicate a significant change between BL and EL within a group ( $p < 0.05$ , Wilcoxon test). Stars indicate a significant difference between two groups at BL or EL ( $*p < 0.05$ , Mann-Whitney U-test).



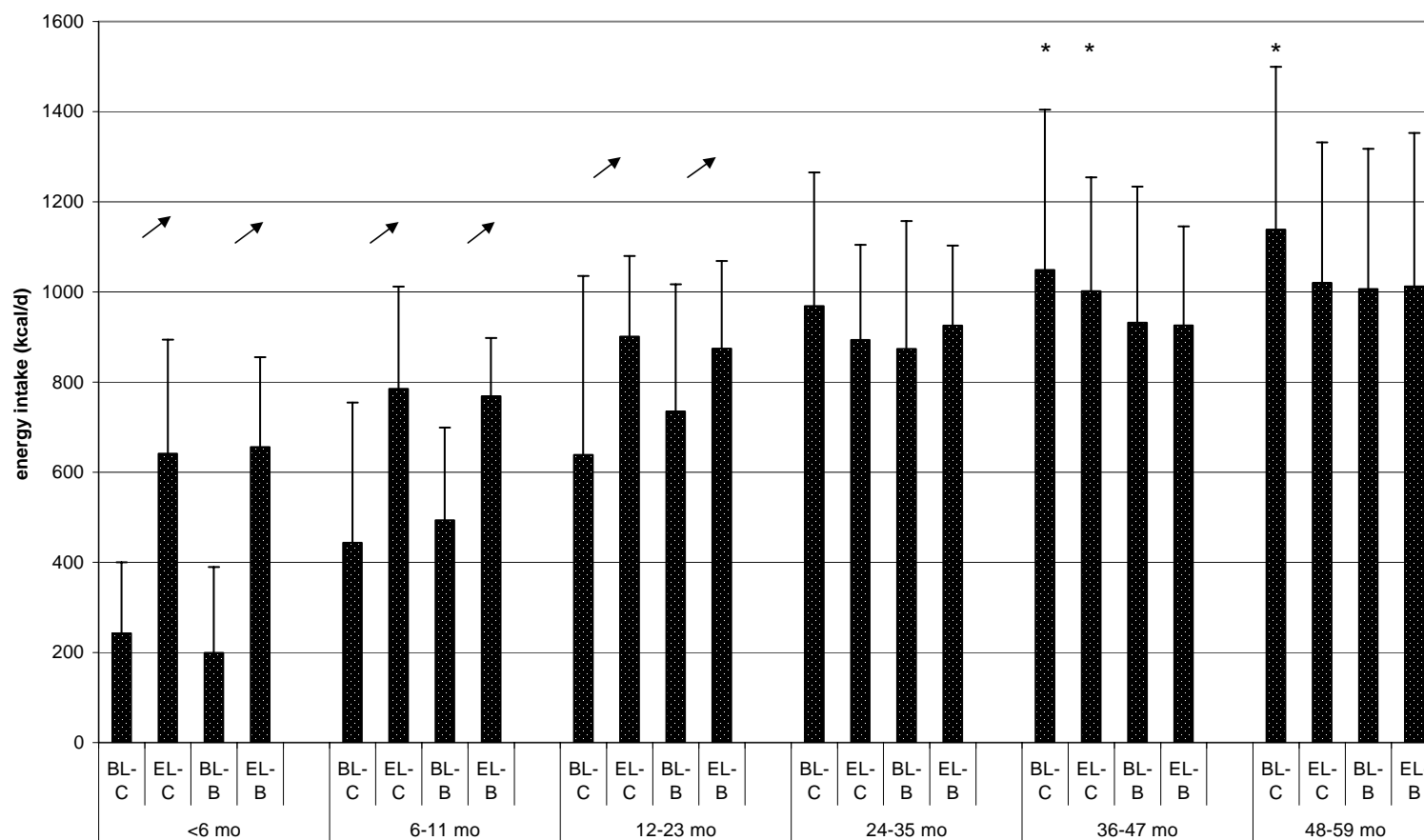
**Figure 4. CRS: Energy intake (kcal/d) at baseline (BL) and at endline (EL) for controls (C) and beneficiaries (B) by age at baseline.**

Bars indicate median and 75<sup>th</sup> percentile. Arrows indicate a significant change between BL and EL within a group ( $p < 0.05$ , Wilcoxon test). Stars indicate a significant difference between two groups at BL or EL ( $*p < 0.05$ , Mann-Whitney U-test).



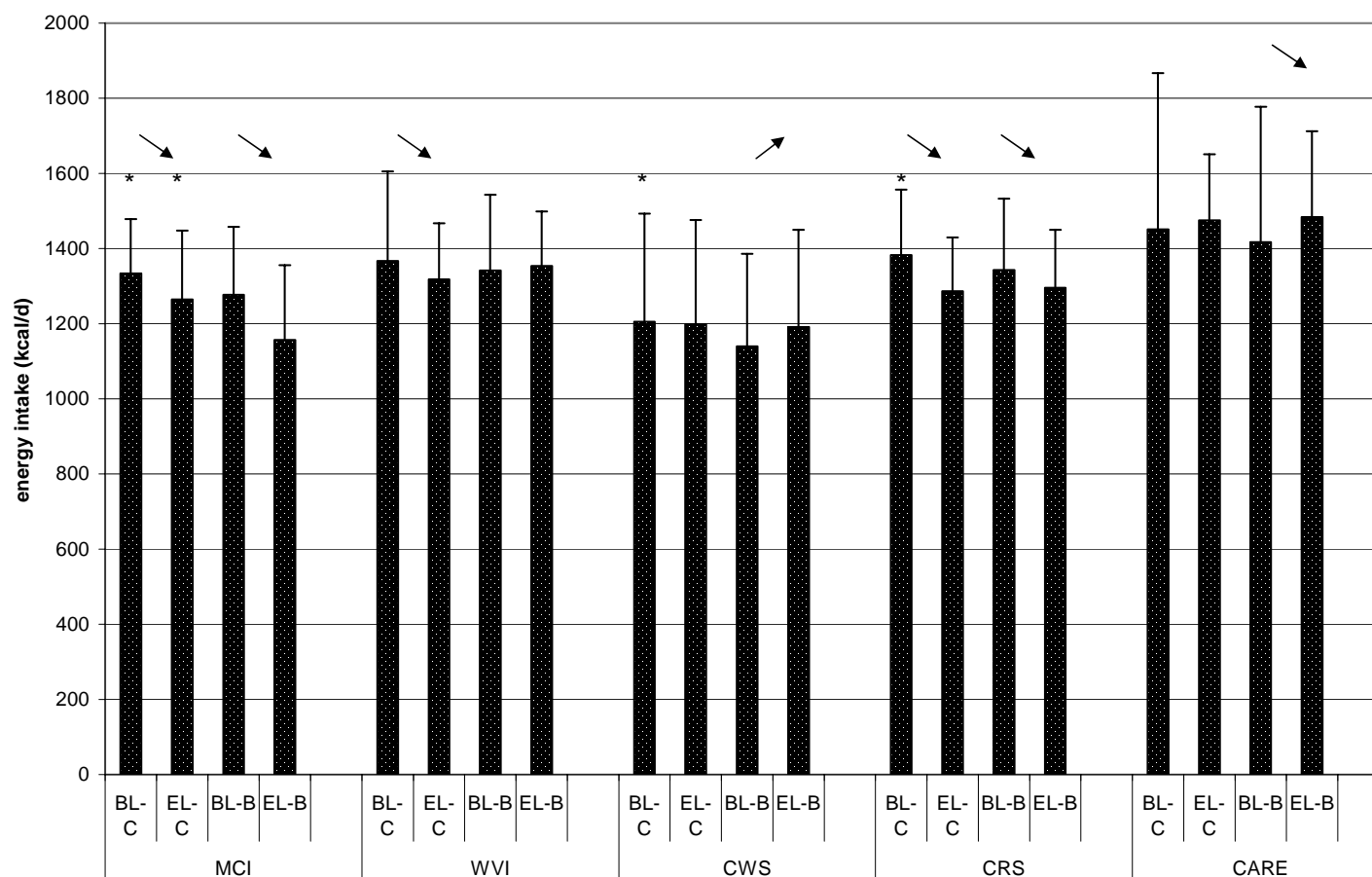
**Figure 5. CARE: Energy intake (kcal/d) at baseline (BL) and at endline (EL) for controls (C) and beneficiaries (B) by age at baseline.**

Bars indicate median and 75<sup>th</sup> percentile. Arrows indicate a significant change between BL and EL within a group ( $p < 0.05$ , Wilcoxon test). Stars indicate a significant difference between two groups at BL or EL ( $*p < 0.05$ , Mann-Whitney U-test).



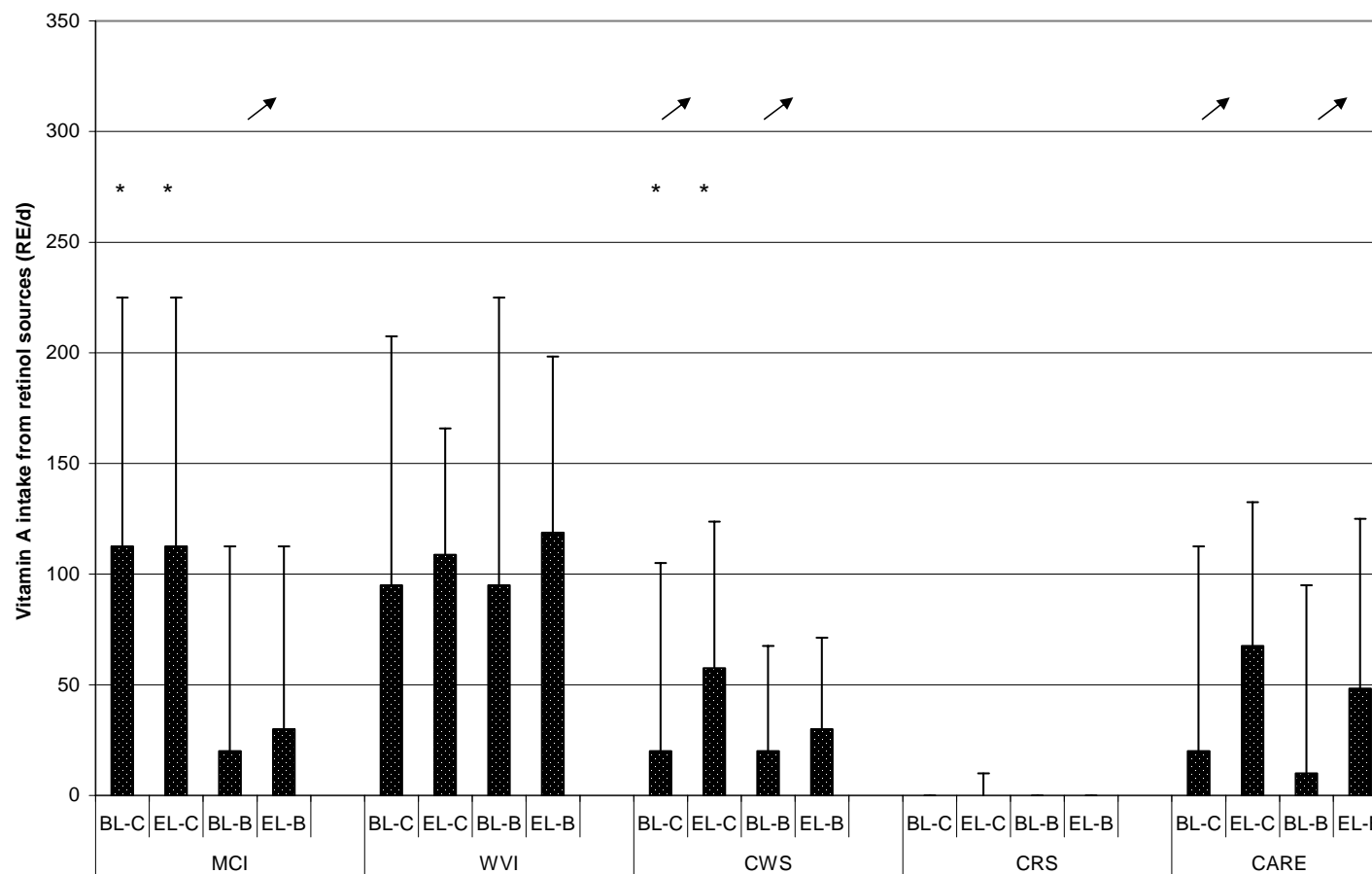
**Figure 6. Mothers' energy intake (kcal/d) at baseline (BL) and at endline (EL) for controls (C) and beneficiaries (B) by site.**

Bars indicate median and 75<sup>th</sup> percentile. Arrows indicate a significant change between BL and EL within a group ( $p < 0.05$ , Wilcoxon test). Stars indicate a significant difference between two groups at BL or EL ( $*p < 0.05$ , Mann-Whitney U-test).

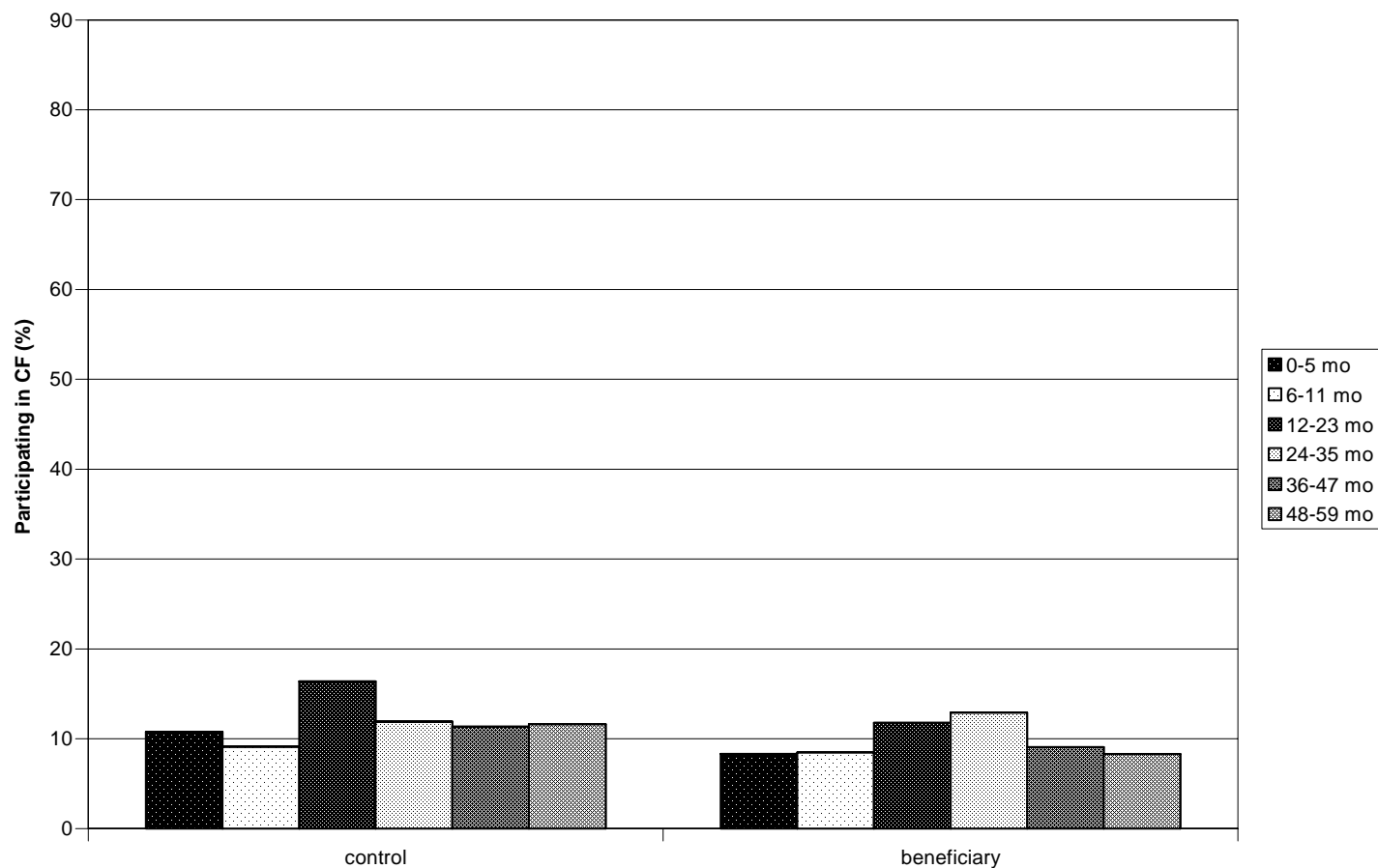


**Figure 7. Mothers' vitamin A intake from retinol-rich foods (fortified and animal foods, RE/d) at baseline (BL) and at endline (EL) for controls (C) and beneficiaries (B) by site.**

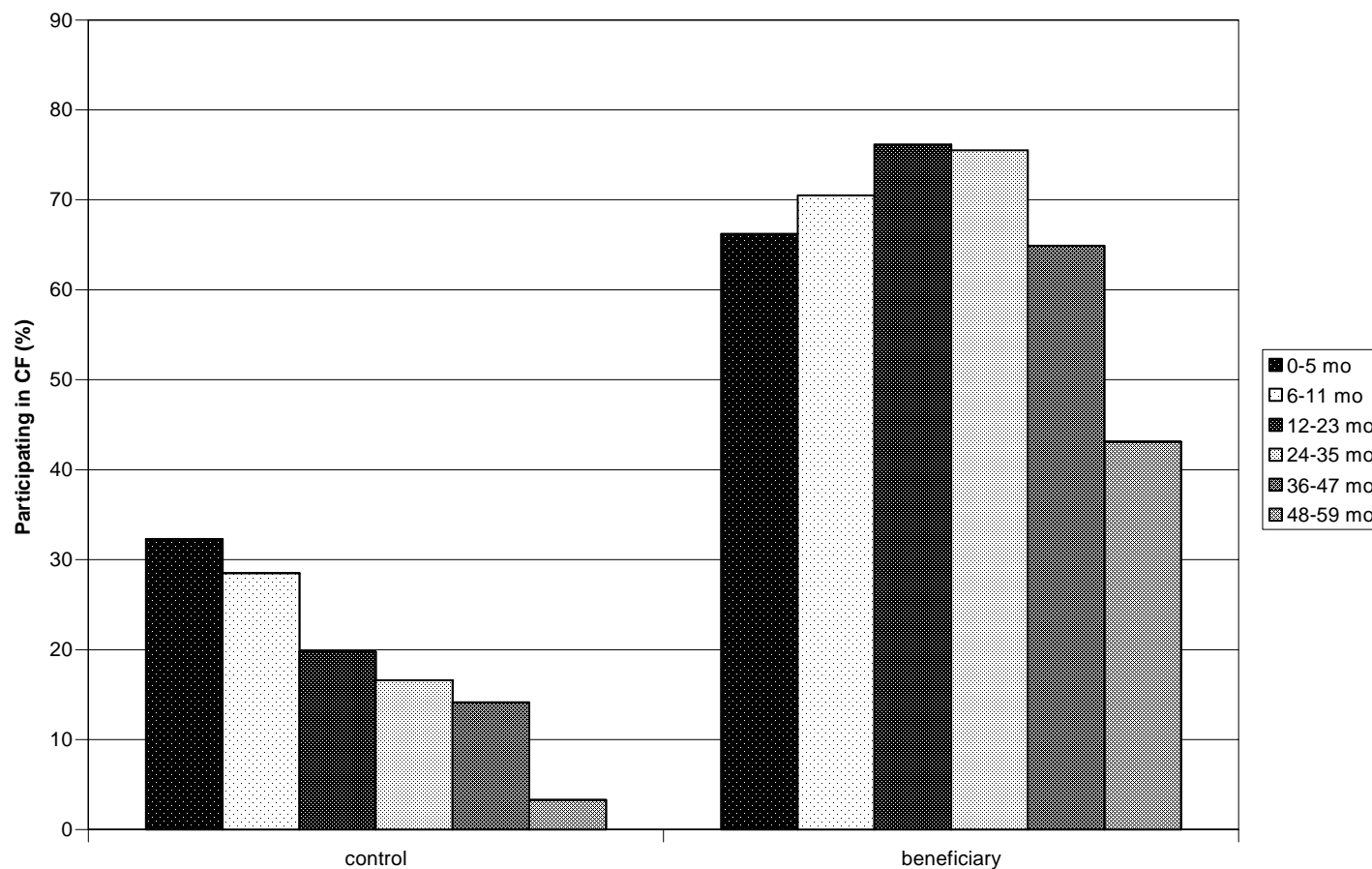
Bars indicate median and 75<sup>th</sup> percentile. Arrows indicate a significant change between BL and EL within a group ( $p < 0.05$ , Wilcoxon test). Stars indicate a significant difference between two groups at BL or EL ( $*p < 0.05$ , Mann-Whitney U-test).



**Figure 8. MCI: Proportion of children that participated in a complementary feeding program at anytime during the intervention for controls (C) and beneficiaries (B) by age at baseline.**

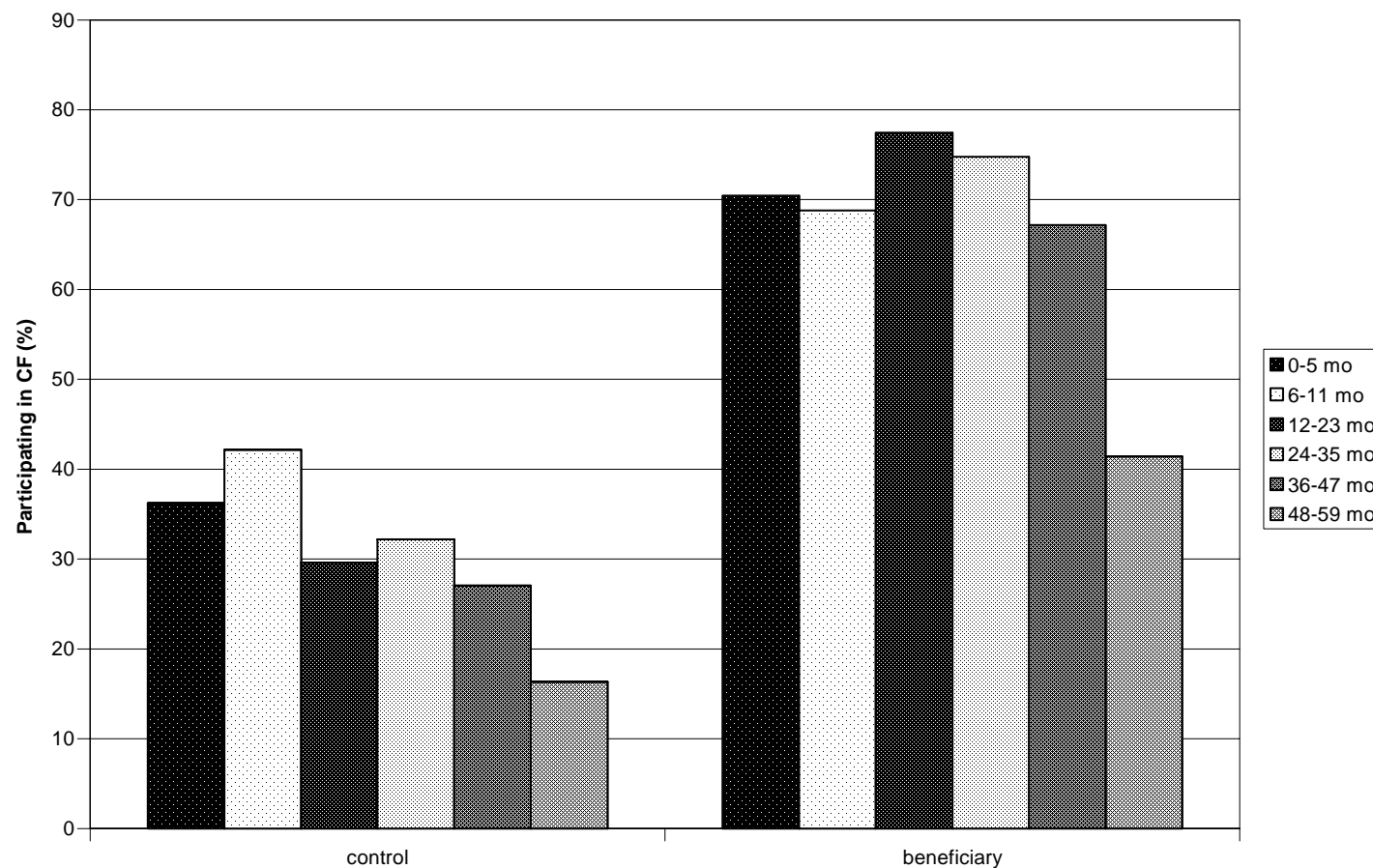


**Figure 9. WVI: Proportion of children that participated in a complementary feeding program at anytime during the intervention for controls (C) and beneficiaries (B) by age at baseline.**

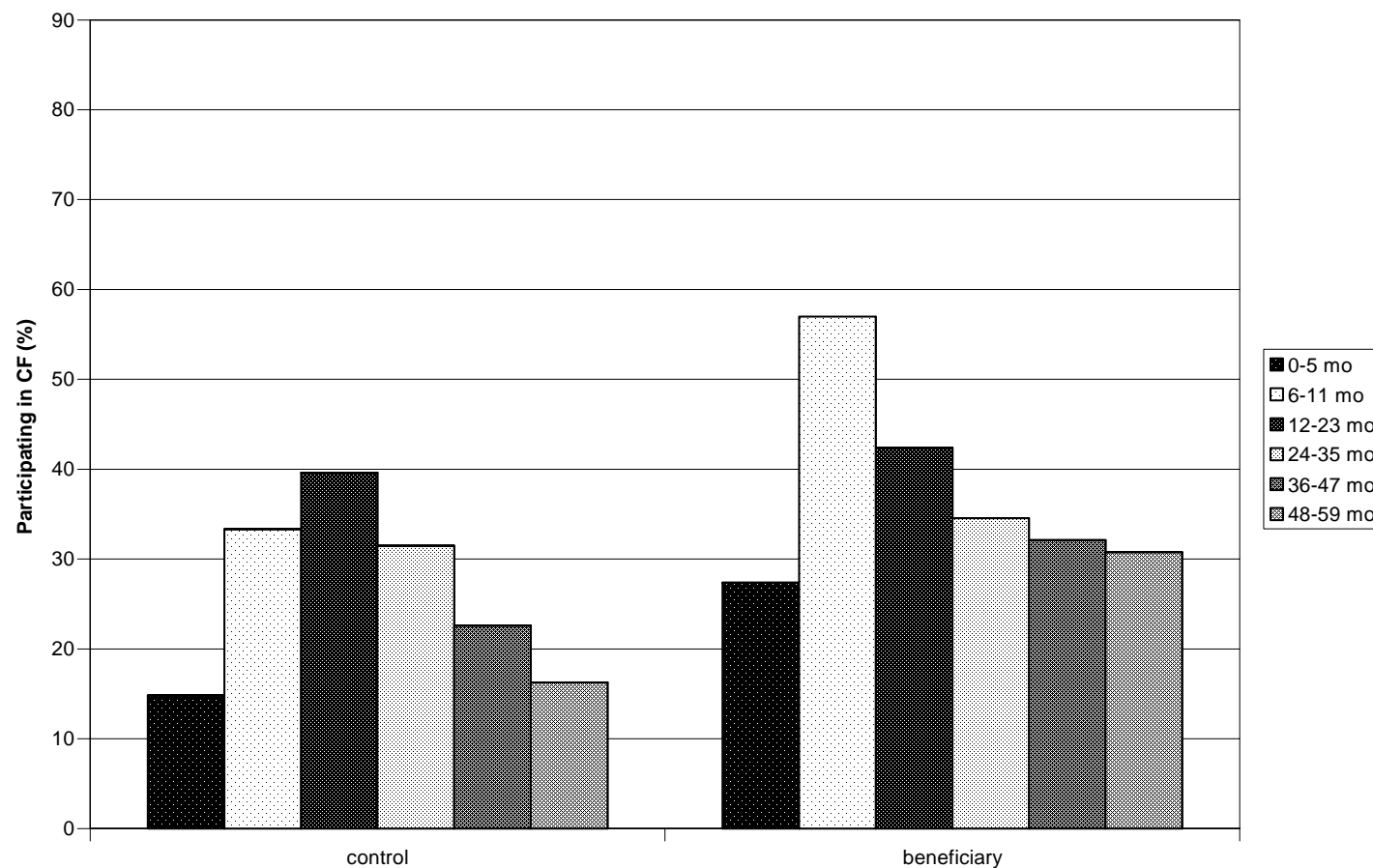




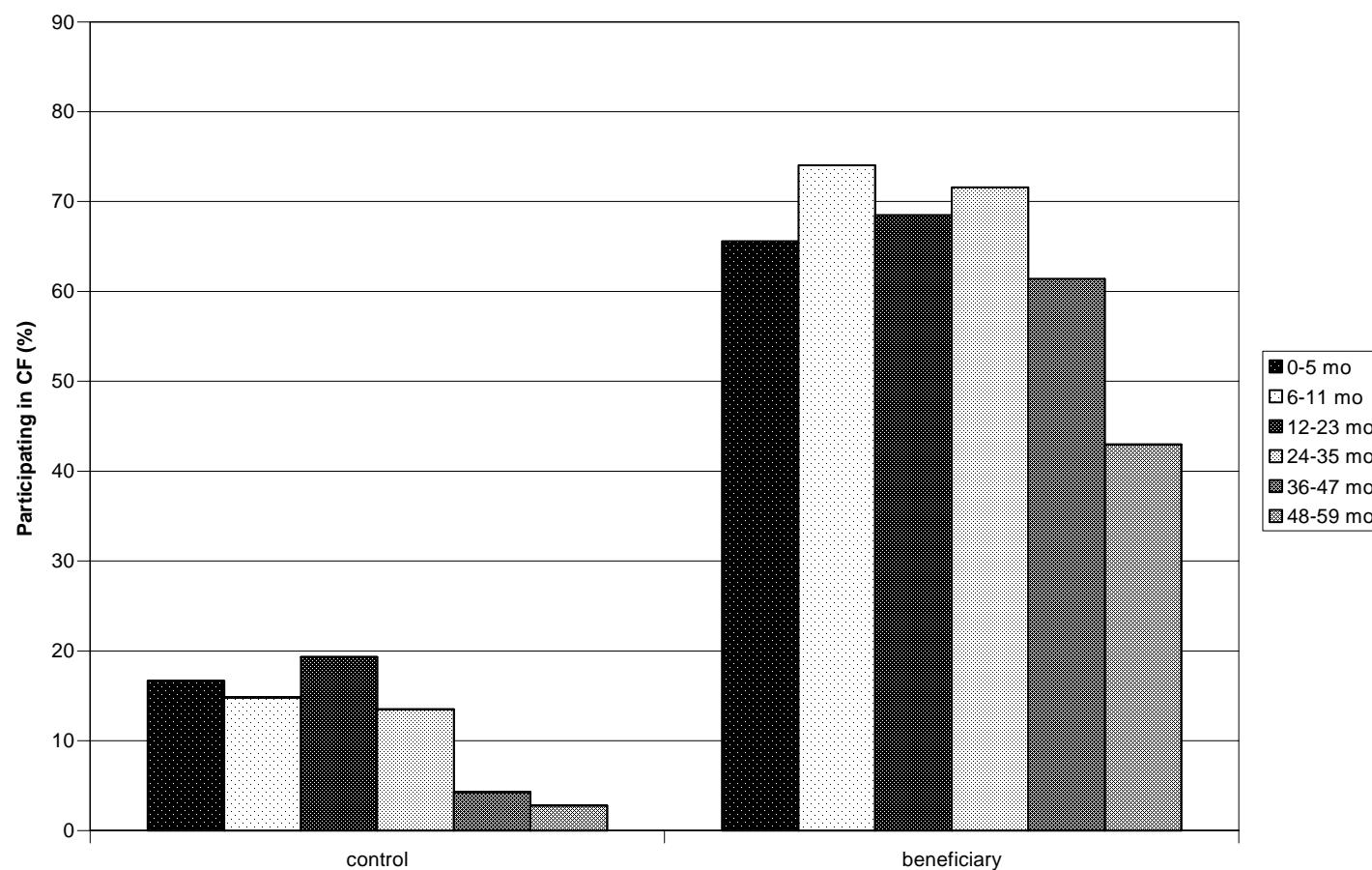
**Figure 10. CWS: Proportion of children that participated in a complementary feeding program at anytime during the intervention for controls (C) and beneficiaries (B) by age at baseline.**



**Figure 11. CRS: Proportion of children that participated in a complementary feeding program at anytime during the intervention for controls (C) and beneficiaries (B) by age at baseline.**

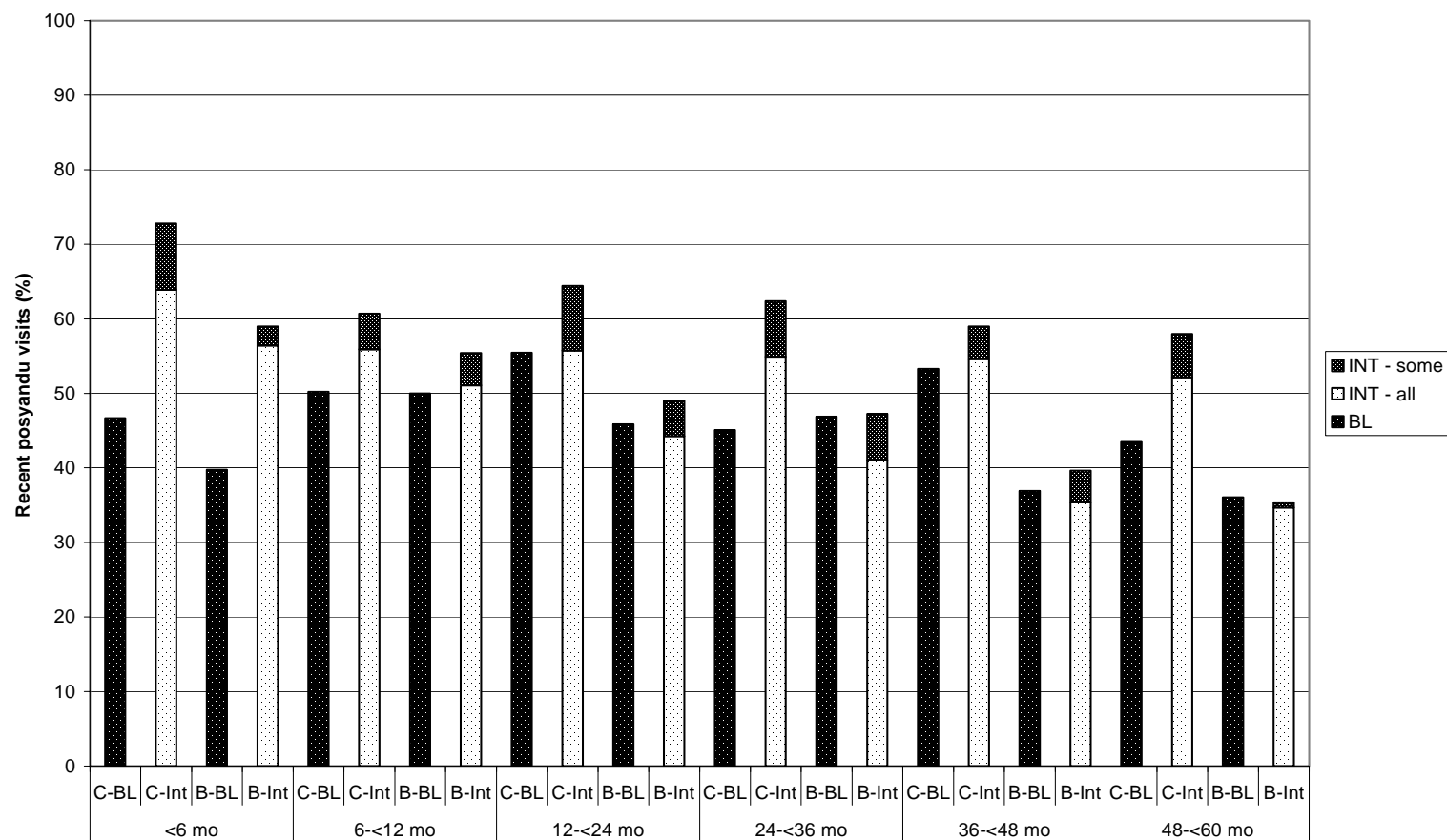


**Figure 12. CARE: Proportion of children that participated in a complementary feeding program at anytime during the intervention for controls (C) and beneficiaries (B) by age at baseline.**



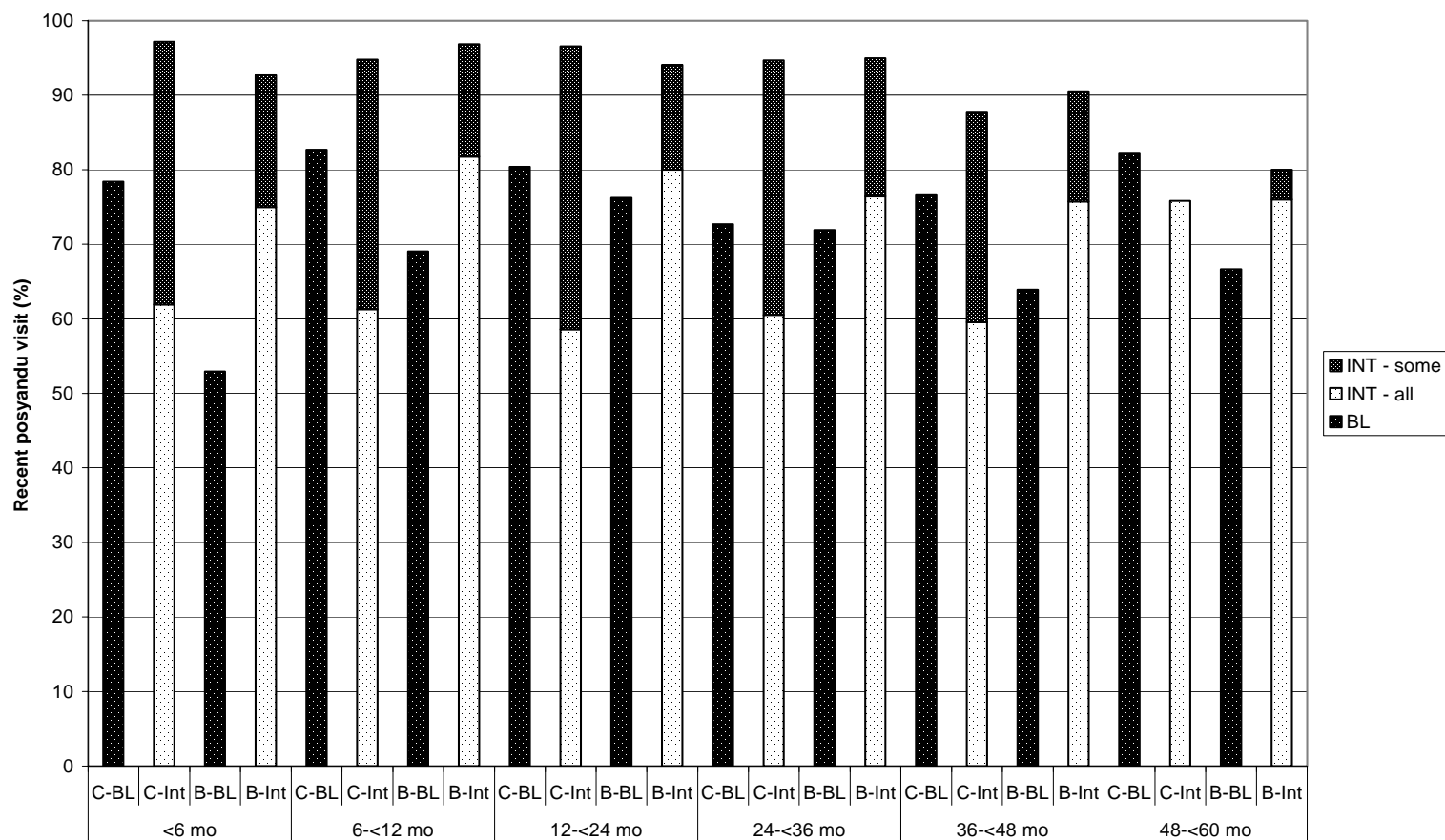
**Figure 13. MCI: Proportion of households that visited a posyandu during the month preceding the interview for controls (C) and beneficiaries (B) by age of child at baseline.**

During the intervention there was often more than one interview and data are therefore shown either as always visited in the last month (INT-full) or sometimes visited (INT-some).



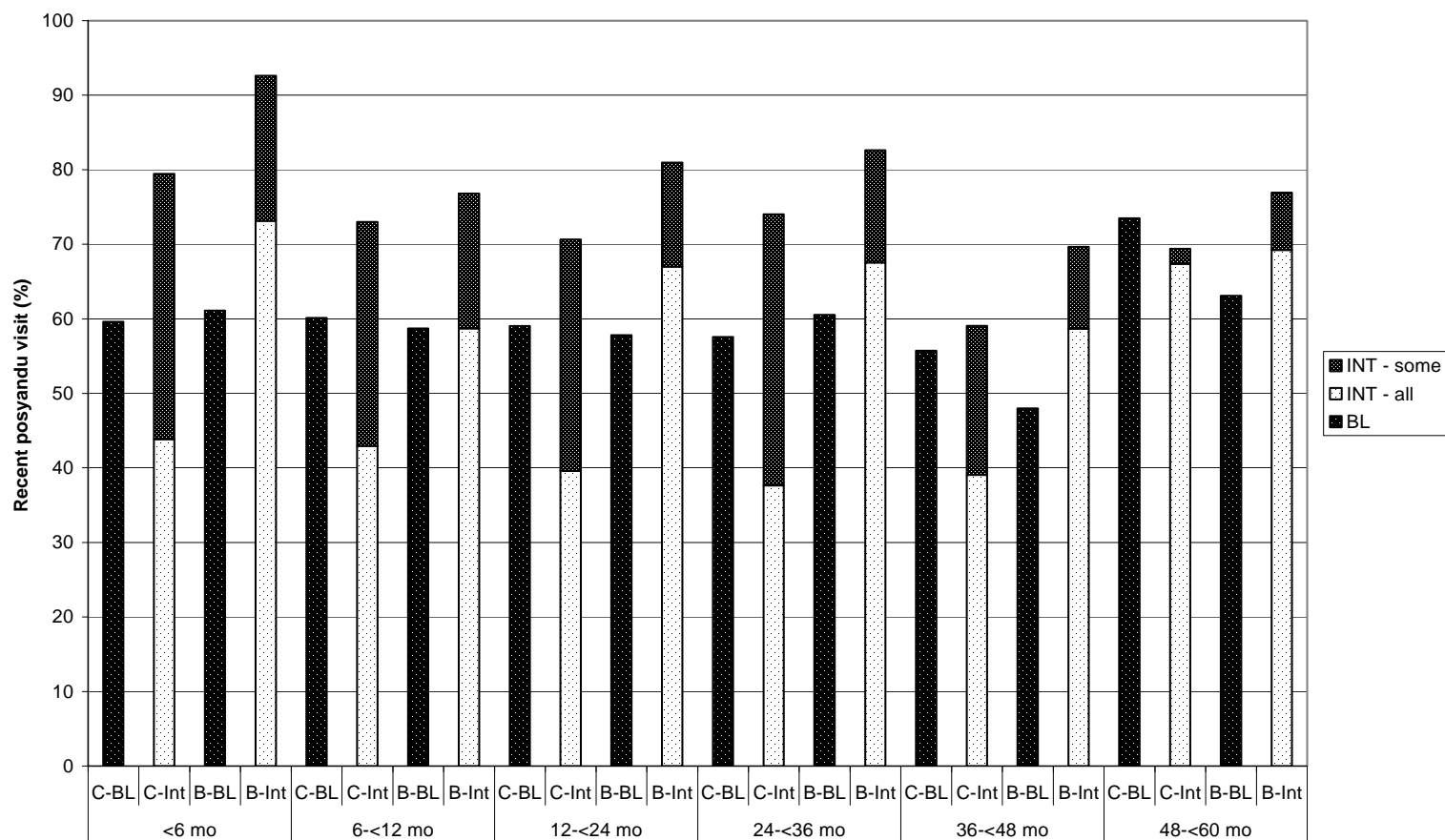
**Figure 14. WVI: Proportion of households that visited a posyandu during the month preceding the interview for controls (C) and beneficiaries (B) by age of child at baseline.**

During the intervention there was often more than one interview and data are therefore shown either as always visited in the last month (INT-full) or sometimes visited (INT-some).



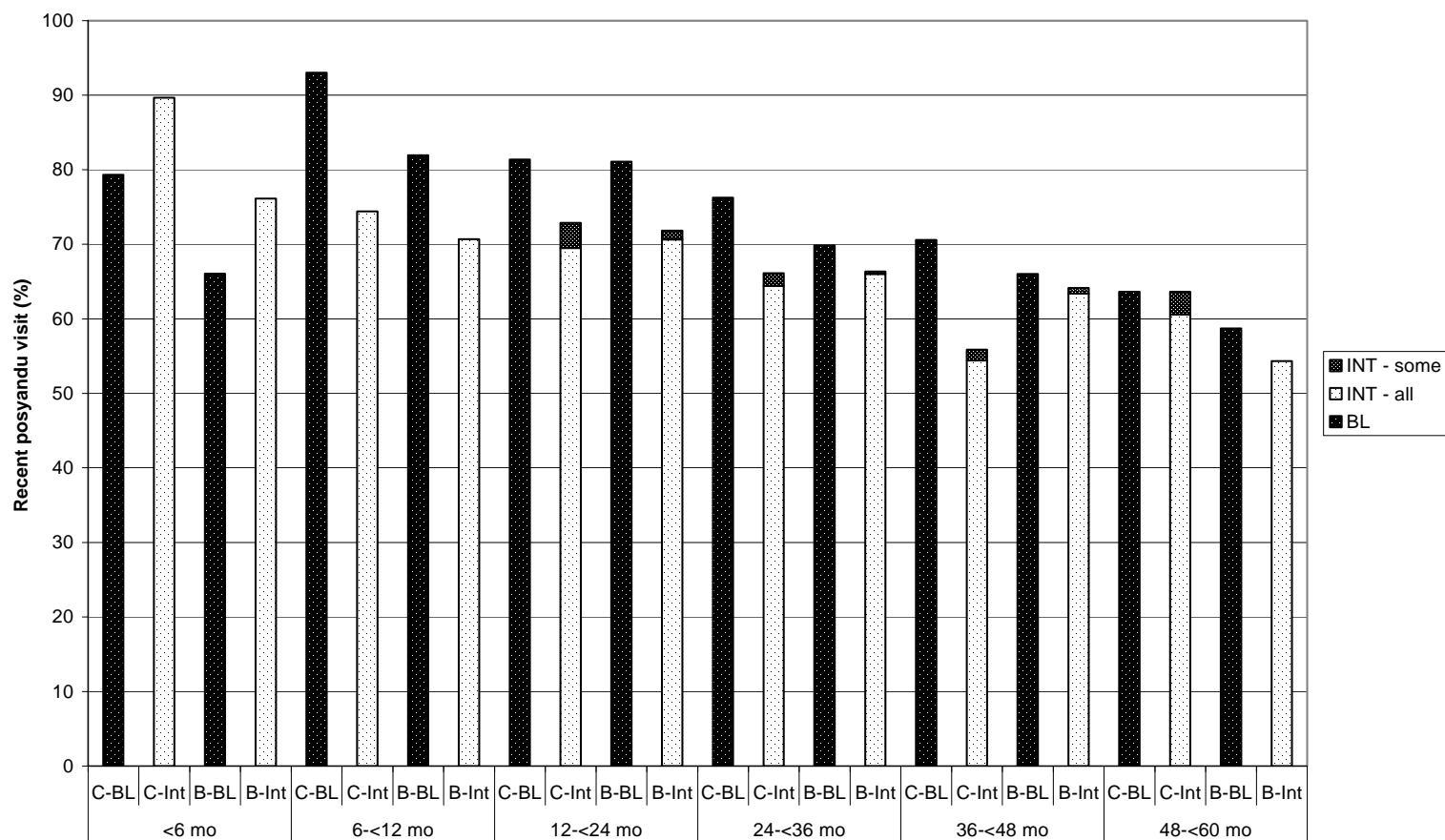
**Figure 15. CWS: Proportion of households that visited a posyandu during the month preceding the interview for controls (C) and beneficiaries (B) by age of child at baseline.**

During the intervention there was often more than one interview and data are therefore shown either as always visited in the last month (INT-full) or sometimes visited (INT-some).



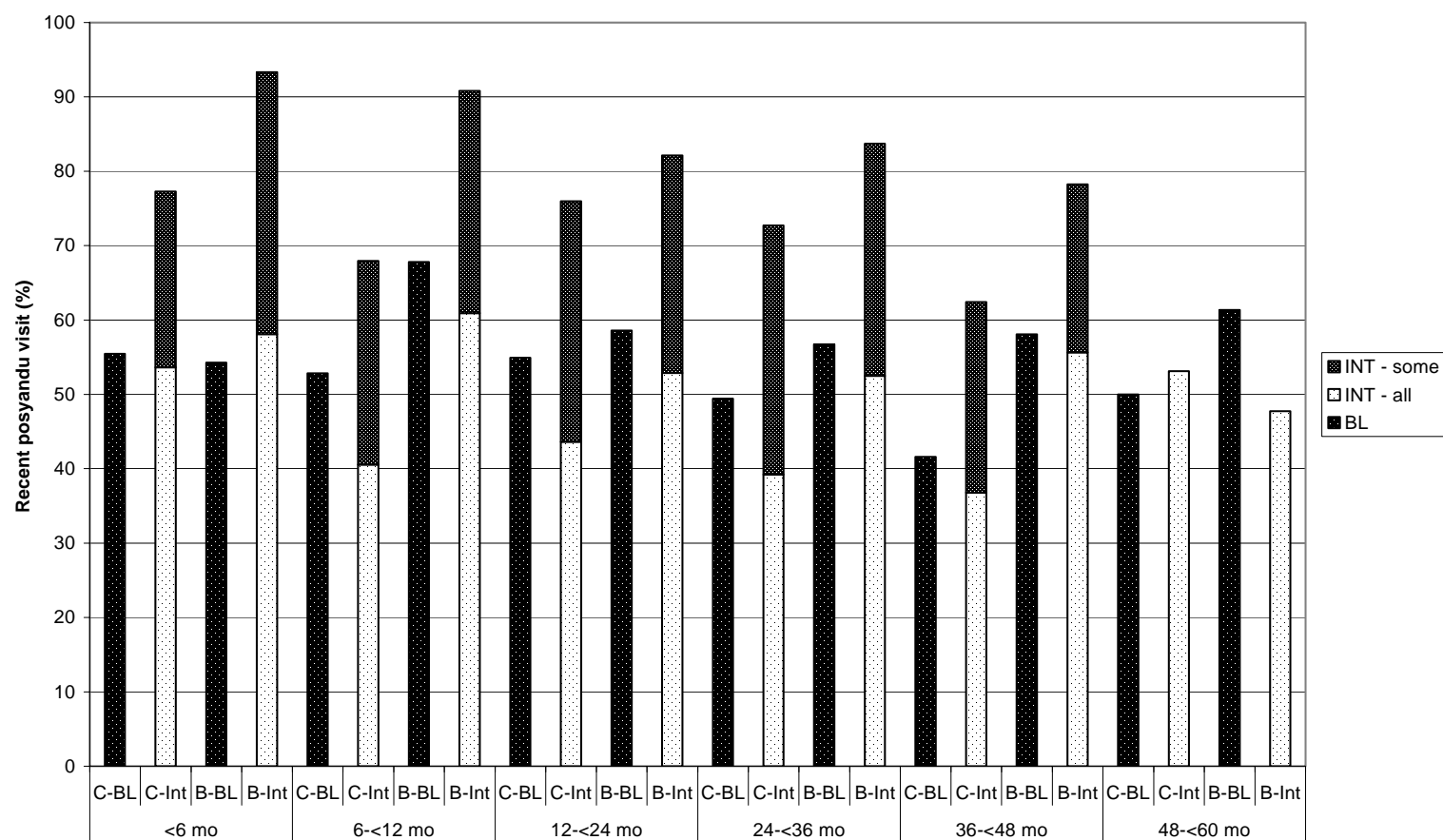
**Figure 16. CRS: Proportion of households that visited a posyandu during the month preceding the interview for controls (C) and beneficiaries (B) by age of child at baseline.**

During the intervention there was often more than one interview and data are therefore shown either as always visited in the last month (INT-full) or sometimes visited (INT-some).



**Figure 17. CARE: Proportion of households that visited a posyandu during the month preceding the interview for controls (C) and beneficiaries (B) by age of child at baseline.**

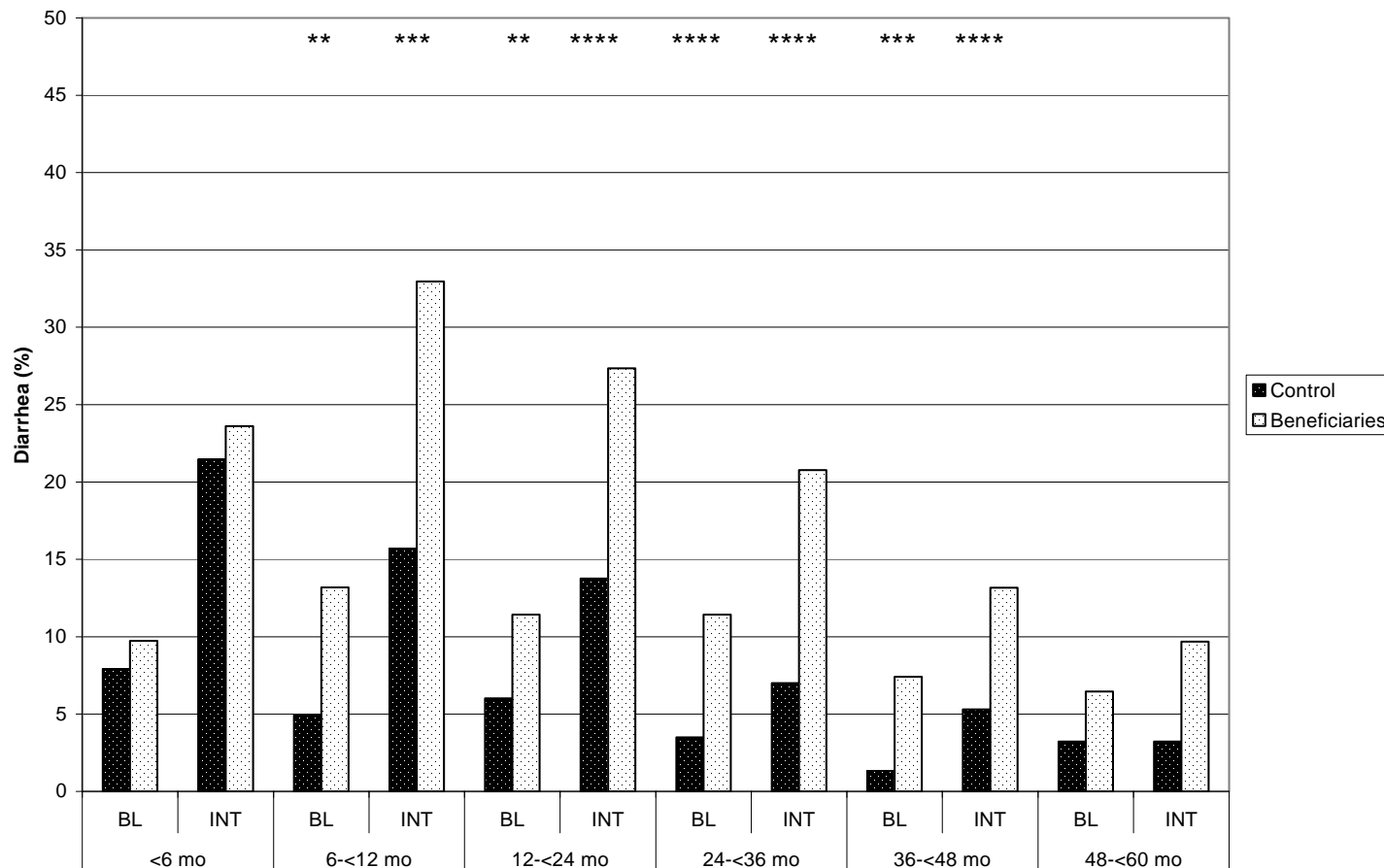
During the intervention there was often more than one interview and data are therefore shown either as always visited in the last month (INT-full) or sometimes visited (INT-some).





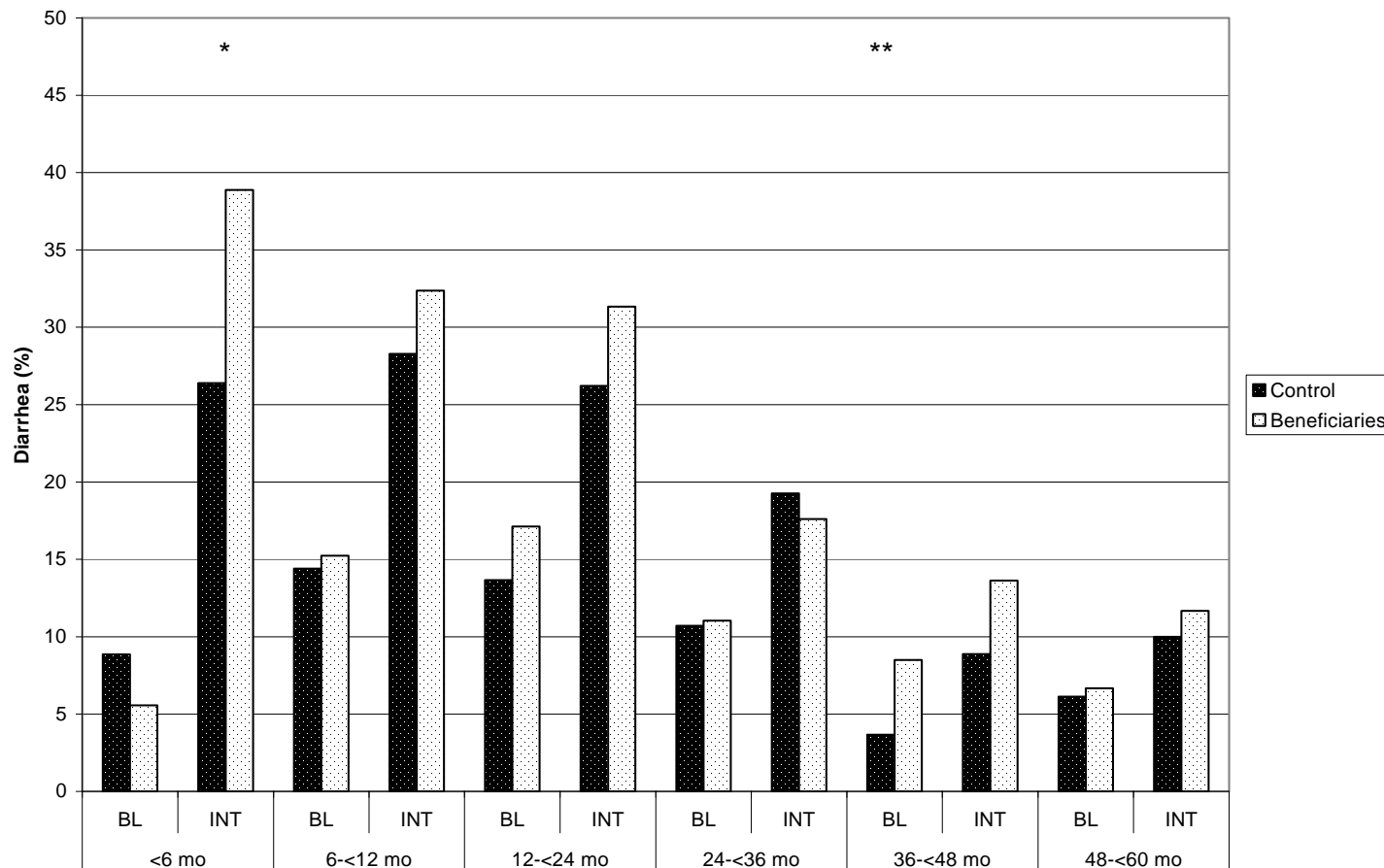
**Figure 18. MCI: Prevalence of diarrhea in the week preceding the interview at baseline (BL) and during the intervention (INT) for controls (C) and beneficiaries (B) by age at baseline.**

During the intervention (INT) there was often more than one interview and data for INT refer to diarrhea in the week preceding any of the interviews. Stars indicate a significant difference between B and C at BL or during INT (\*p<0.10, \*\*p<0.05, \*\*\*p<0.01, \*\*\*\*p<0.001).



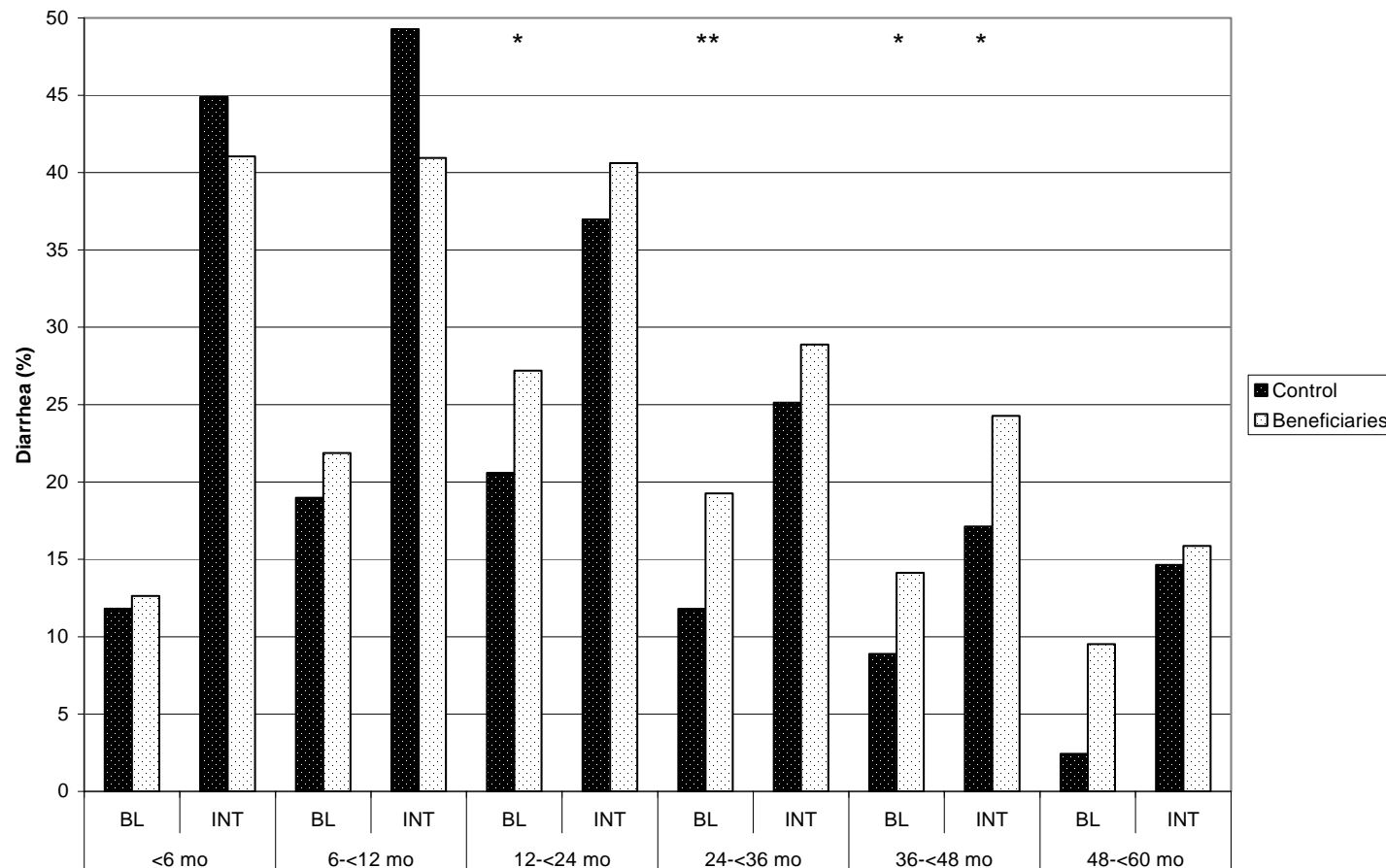
**Figure 19. WVI: Prevalence of diarrhea in the week preceding the interview at baseline (BL) and during the intervention (INT) for controls (C) and beneficiaries (B) by age at baseline.**

During the intervention (INT) there was often more than one interview and data for INT refer to diarrhea in the week preceding any of the interviews. Stars indicate a significant difference between B and C at BL or during INT (\*p<0.10, \*\*p<0.05, \*\*\*p<0.01, \*\*\*\*p<0.001).



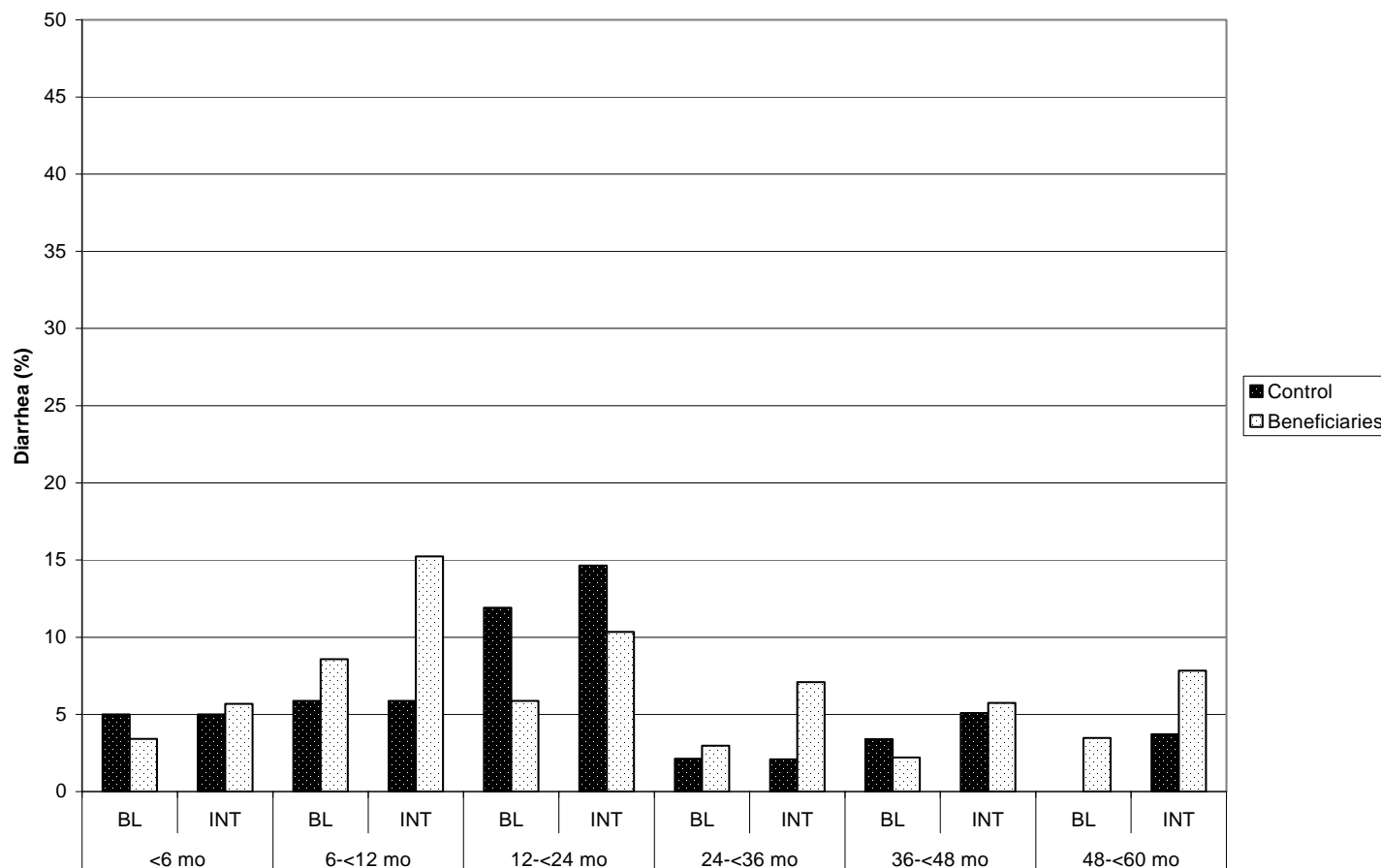
**Figure 20. CWS: Prevalence of diarrhea in the week preceding the interview at baseline (BL) and during the intervention (INT) for controls (C) and beneficiaries (B) by age at baseline.**

During the intervention (INT) there was often more than one interview and data for INT refer to diarrhea in the week preceding any of the interviews. Stars indicate a significant difference between B and C at BL or during INT (\* $p < 0.10$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$ , \*\*\*\* $p < 0.001$ ).



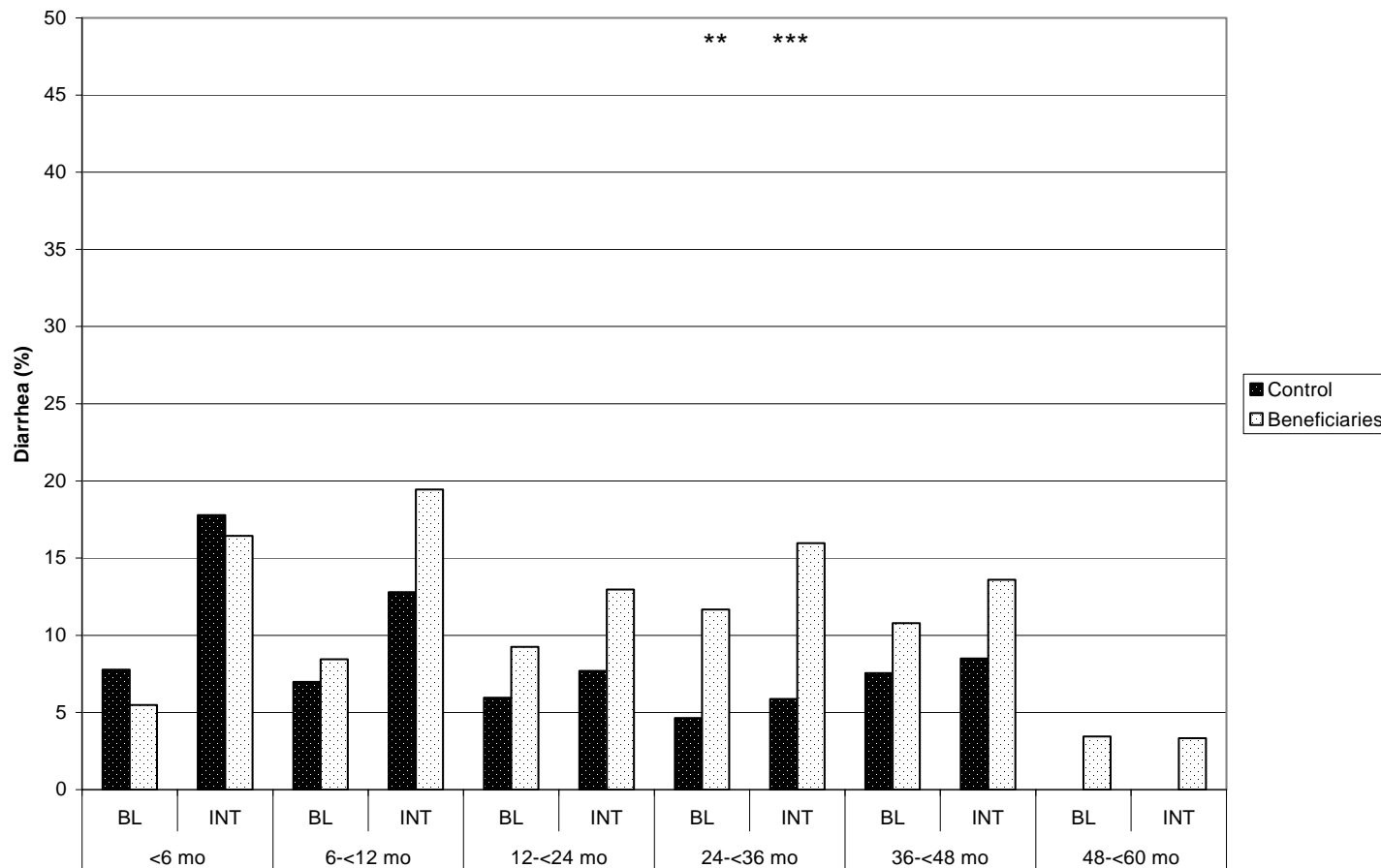
**Figure 21. CRS: Prevalence of diarrhea in the week preceding the interview at baseline (BL) and during the intervention (INT) for controls (C) and beneficiaries (B) by age at baseline.**

During the intervention (INT) there was often more than one interview and data for INT refer to diarrhea in the week preceding any of the interviews. Stars indicate a significant difference between B and C at BL or during INT (\*p<0.10, \*\*p<0.05, \*\*\*p<0.01, \*\*\*\*p<0.001).



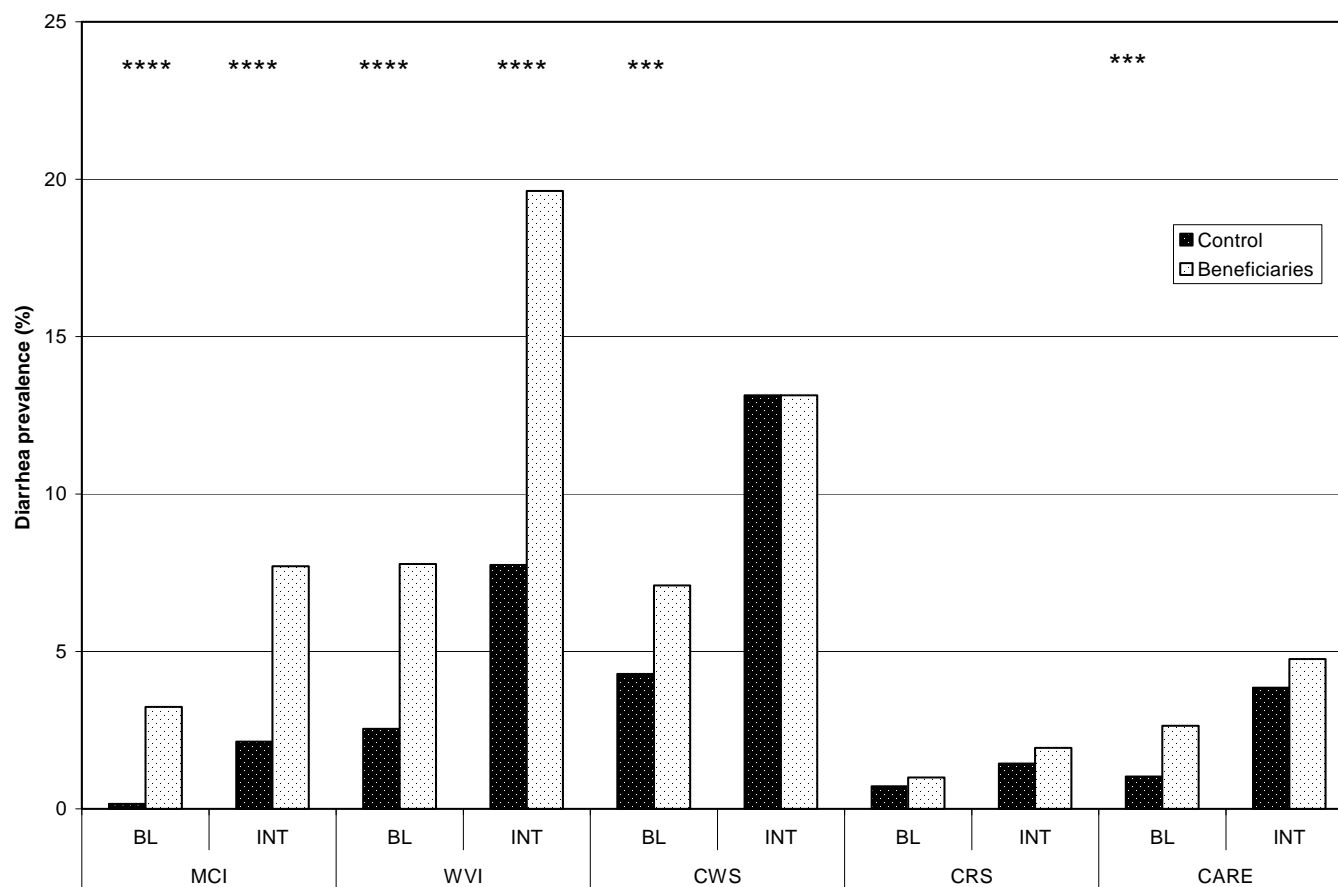
**Figure 22. CARE: Prevalence of diarrhea in the week preceding the interview at baseline (BL) and during the intervention (INT) for controls (C) and beneficiaries (B) by age at baseline.**

During the intervention (INT) there was often more than one interview and data for INT refer to diarrhea in the week preceding any of the interviews. Stars indicate a significant difference between B and C at BL or during INT (\*p<0.10, \*\*p<0.05, \*\*\*p<0.01, \*\*\*\*p<0.001).



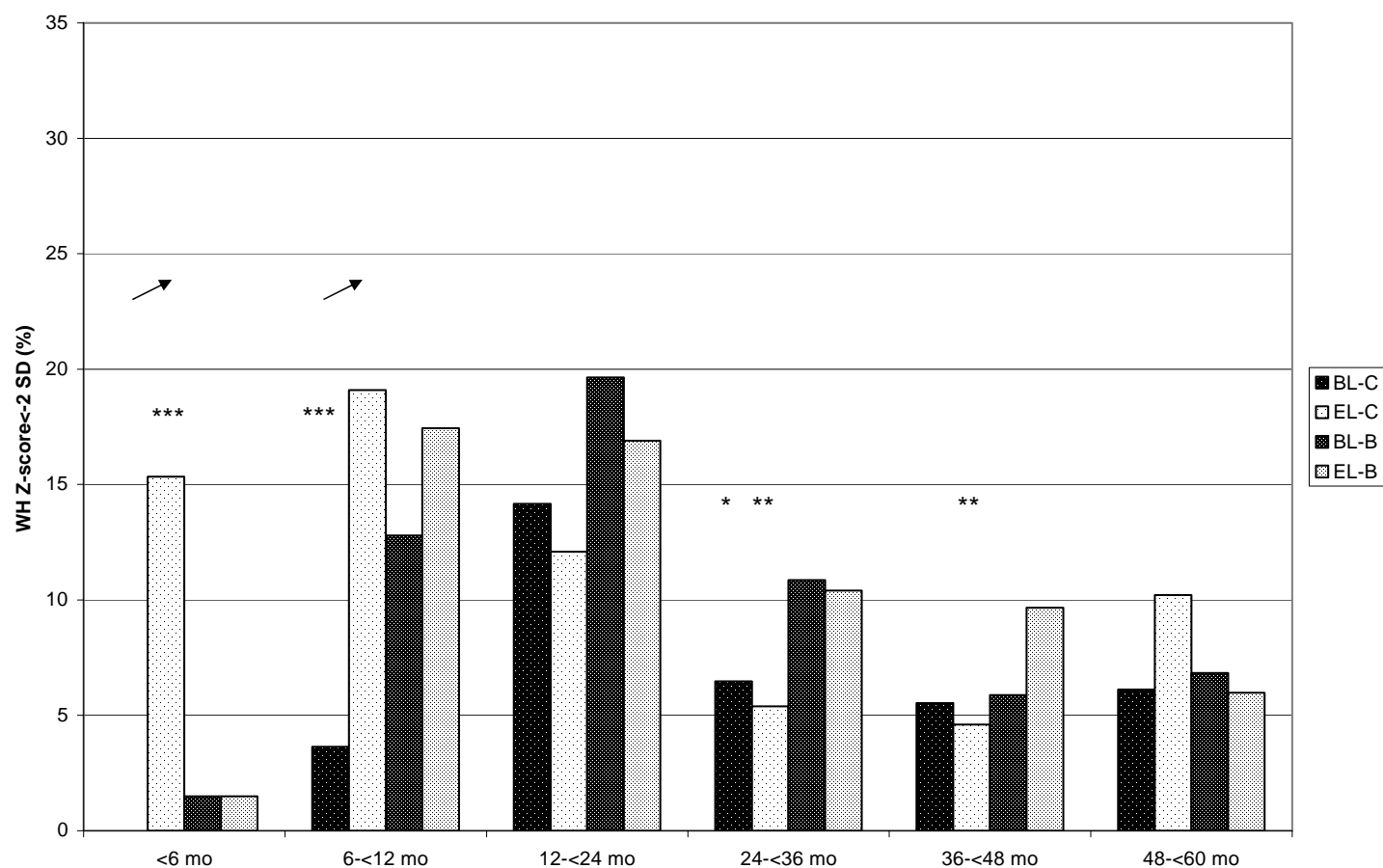
**Figure 23. Prevalence of diarrhea among mothers in the week preceding the interview at baseline (BL) and during the intervention (INT) for controls (C) and beneficiaries (B) by site.**

During the intervention (INT) there was often more than one interview and data for INT therefore refer to diarrhea in the week preceding any of the interviews. Stars indicate a significant difference between B and C at BL or during INT (\*\*p<0.01, \*\*\*p<0.001).



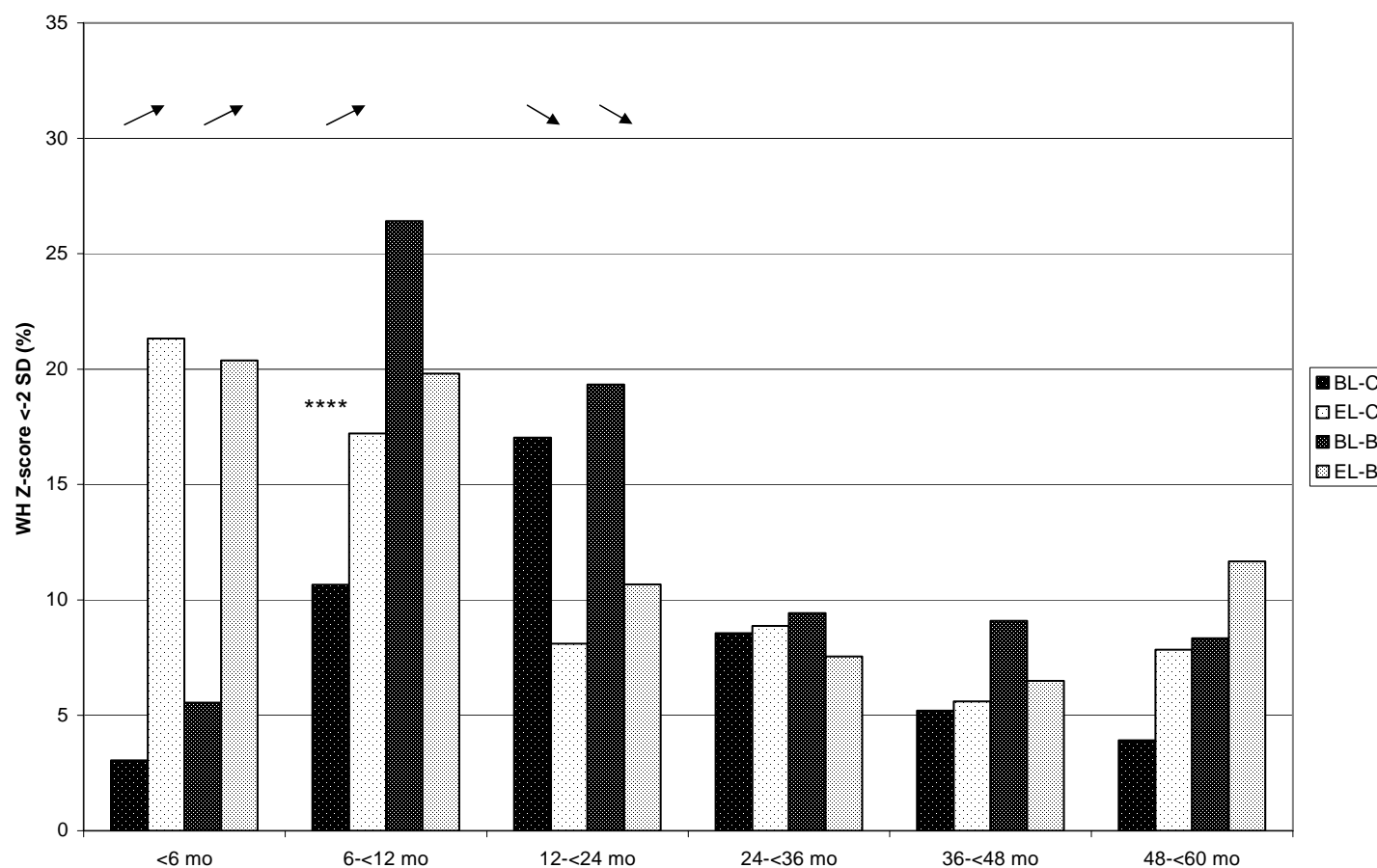
**Figure 24. MCI: Wasting prevalence (WH Z-score <-2 SD) at baseline (BL) and endline (EL) among controls (C) and beneficiaries (B) by age at baseline.**

Arrows indicate a significantly different prevalence between BL and EL for a particular group. Stars indicate a significant difference between B and C at BL or EL (\*p<0.10, \*\*p<0.05, \*\*\*p<0.01, \*\*\*\*p<0.001).



**Figure 25. WVI: Wasting prevalence (WH Z-score <-2 SD) at baseline (BL) and endline (EL) among controls (C) and beneficiaries (B) by age at baseline.**

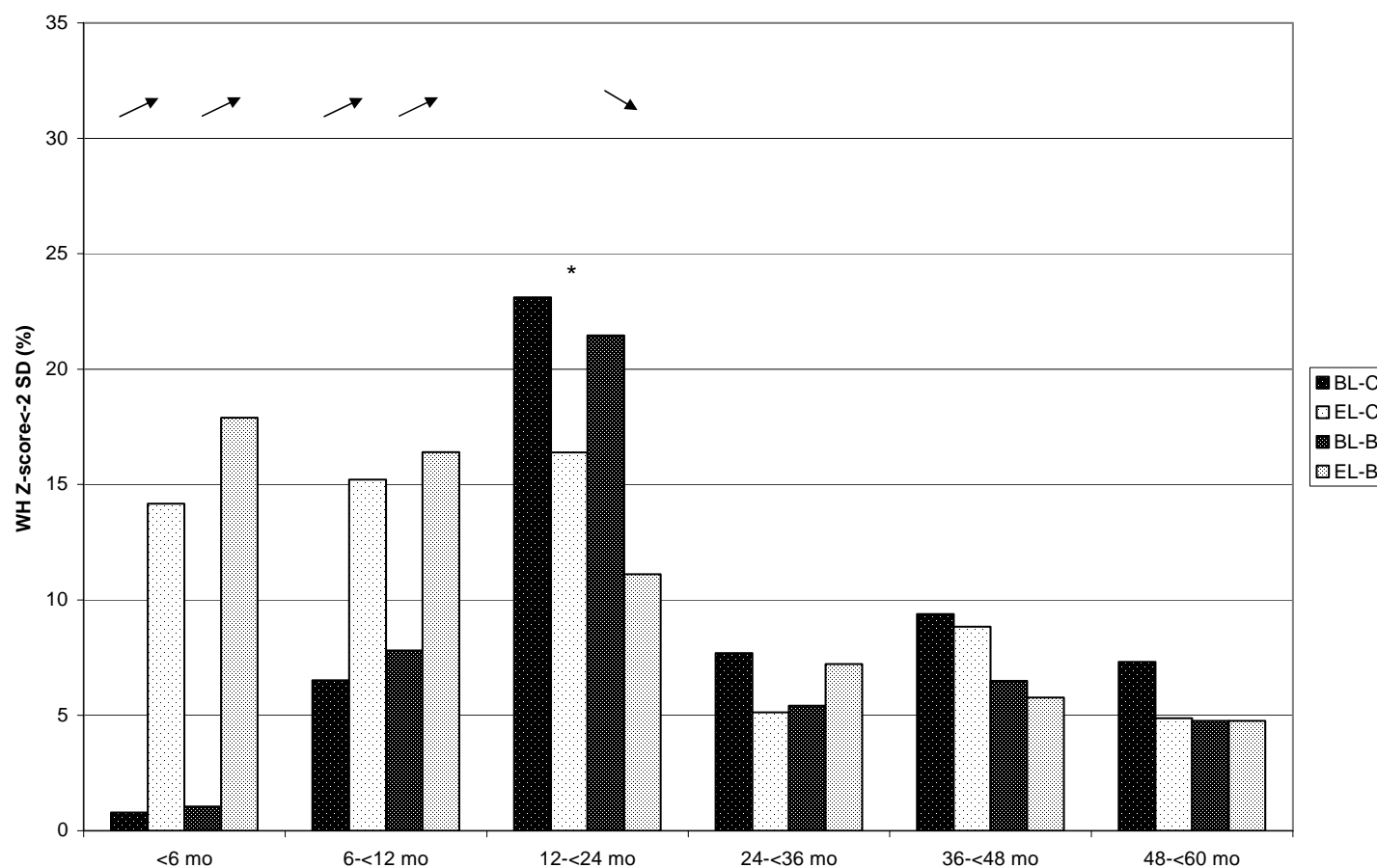
Arrows indicate a significantly different prevalence between BL and EL for a particular group. Stars indicate a significant difference between B and C at BL or EL (\*p<0.10, \*\*p<0.05, \*\*\*p<0.01, \*\*\*\*p<0.001).





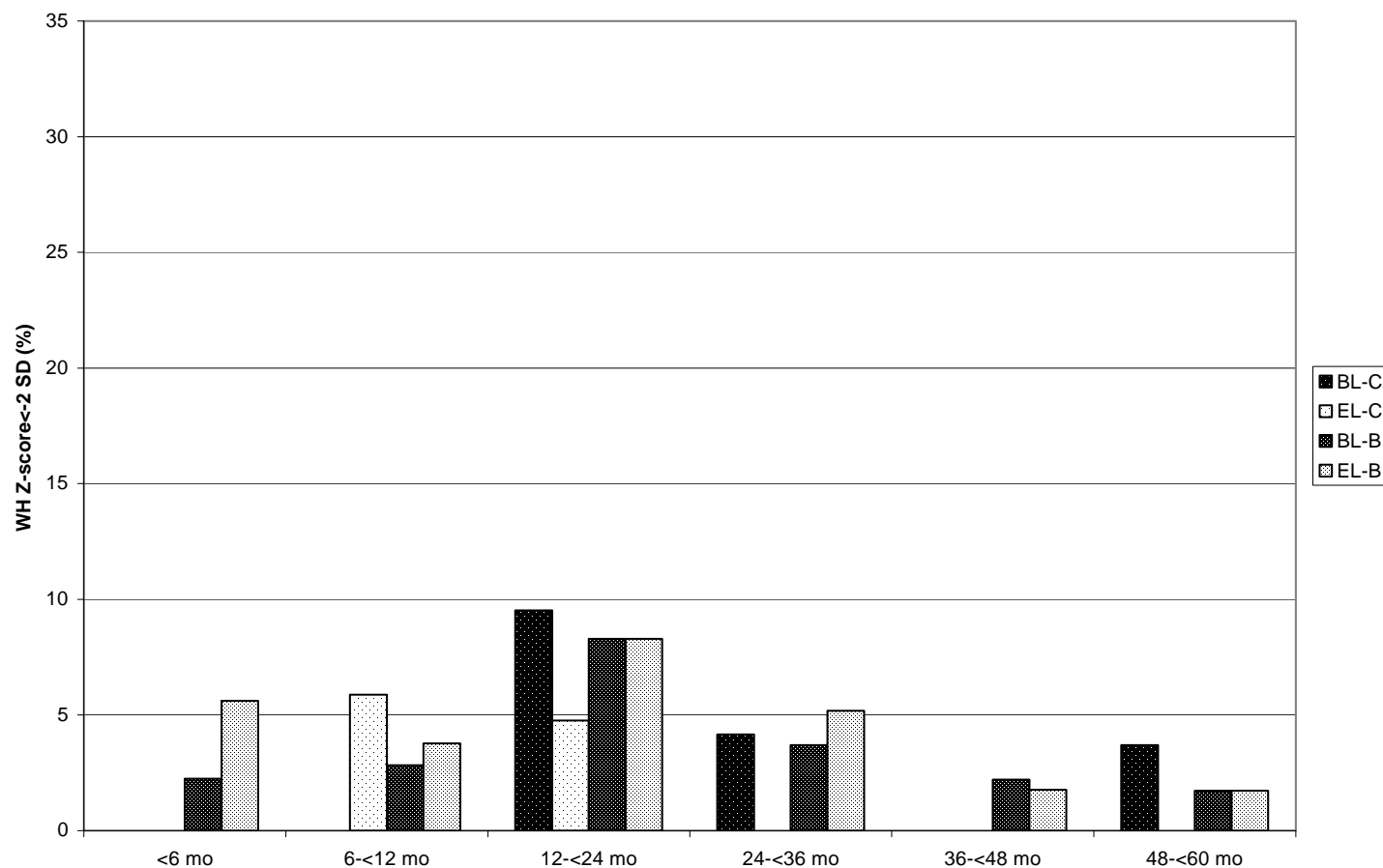
**Figure 26. CWS: Wasting prevalence (WH Z-score <-2 SD) at baseline (BL) and endline (EL) among controls (C) and beneficiaries (B) by age at baseline.**

Arrows indicate a significantly different prevalence between BL and EL for a particular group. Stars indicate a significant difference between B and C at BL or EL (\*p<0.10, \*\*p<0.05, \*\*\*p<0.01, \*\*\*\*p<0.001).



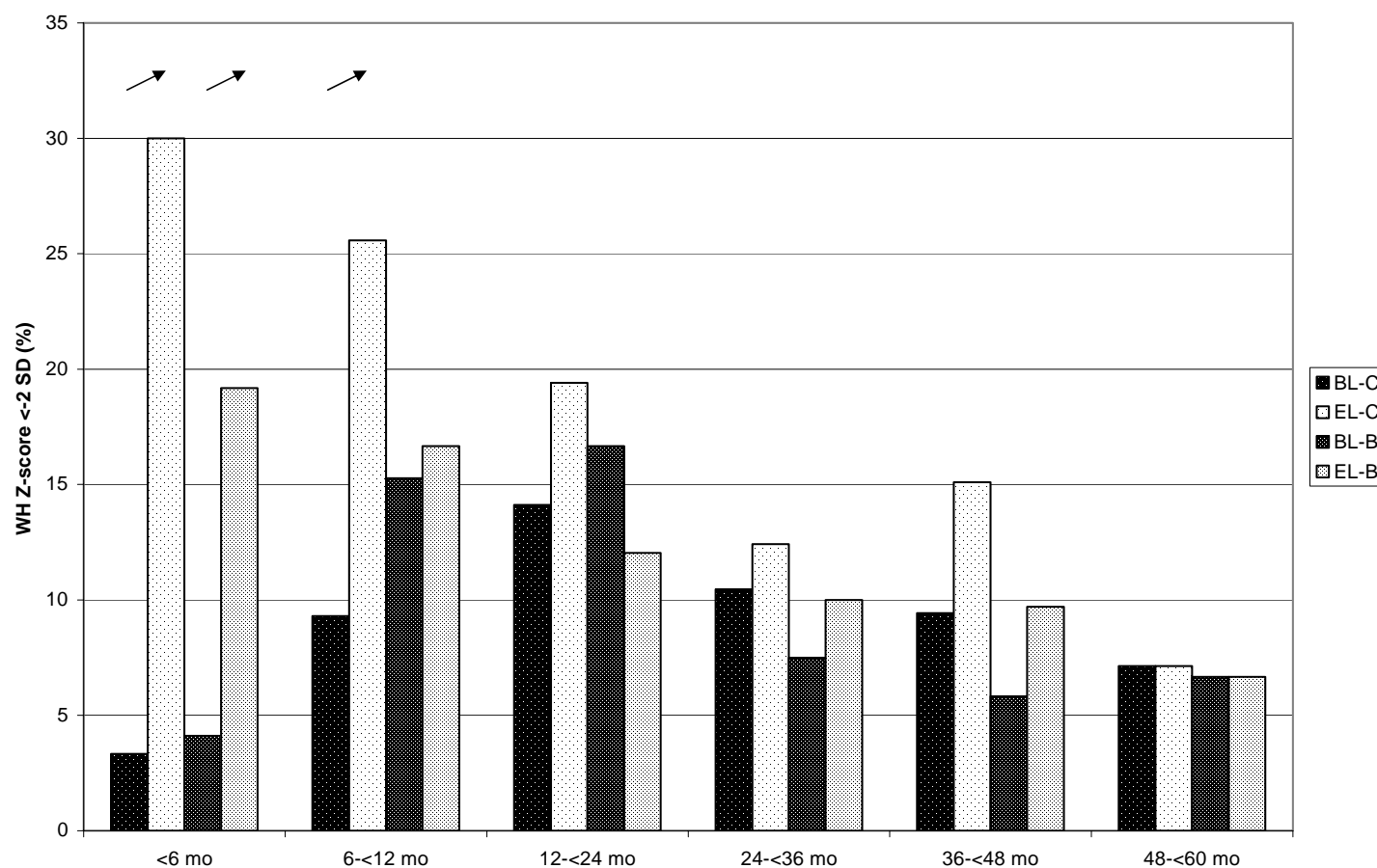
**Figure 27. CRS: Wasting prevalence (WH Z-score <-2 SD) at baseline (BL) and endline (EL) among controls (C) and beneficiaries (B) by age at baseline.**

Arrows indicate a significantly different prevalence between BL and EL for a particular group. Stars indicate a significant difference between B and C at BL or EL (\*p<0.10, \*\*p<0.05, \*\*\*p<0.01, \*\*\*\*p<0.001).



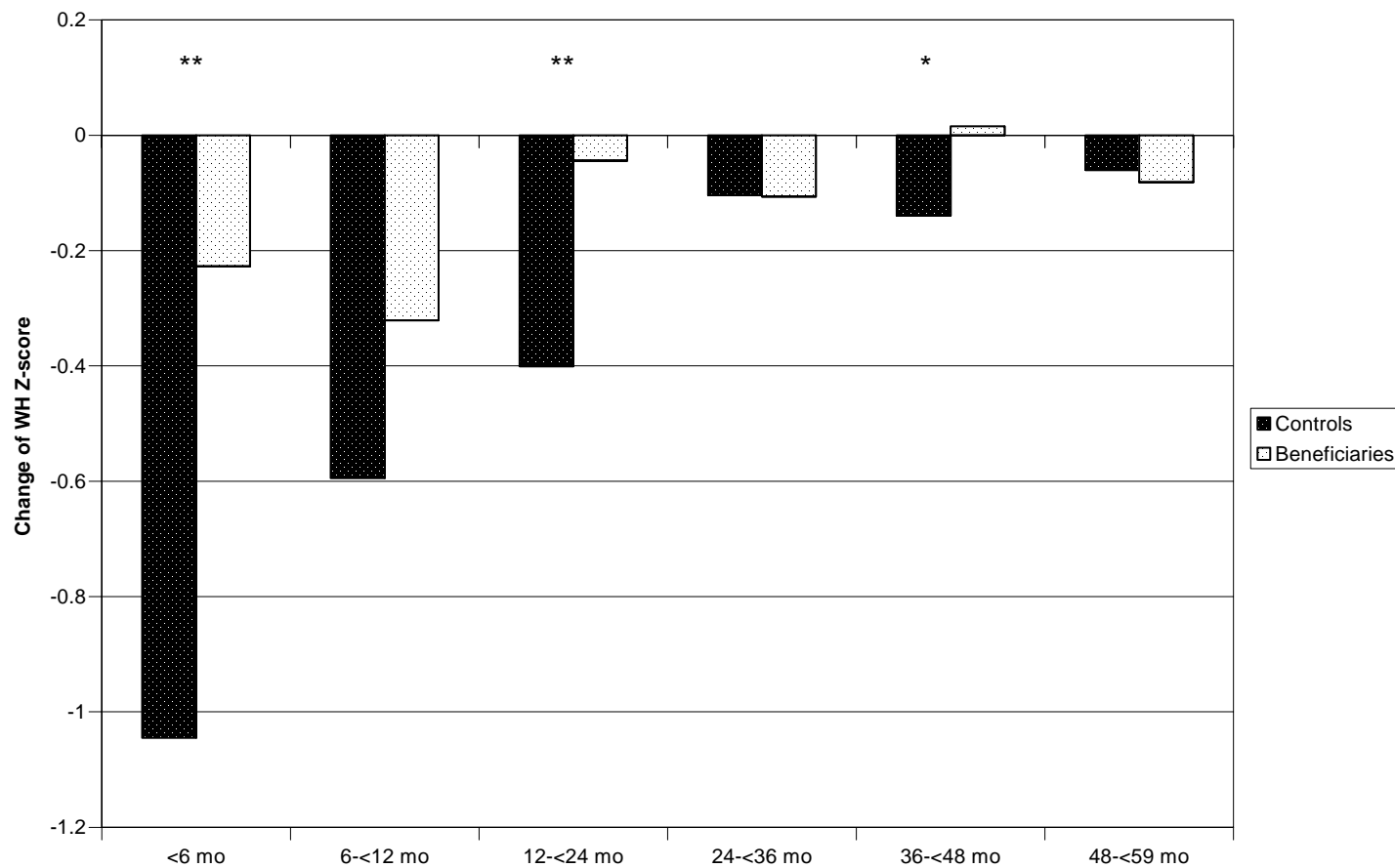
**Figure 28. CARE: Wasting prevalence (WH Z-score <-2 SD) at baseline (BL) and endline (EL) among controls (C) and beneficiaries (B) by age at baseline.**

Arrows indicate a significantly different prevalence between BL and EL for a particular group. Stars indicate a significant difference between B and C at BL or EL (\*p<0.10, \*\*p<0.05, \*\*\*p<0.01, \*\*\*\*p<0.001).



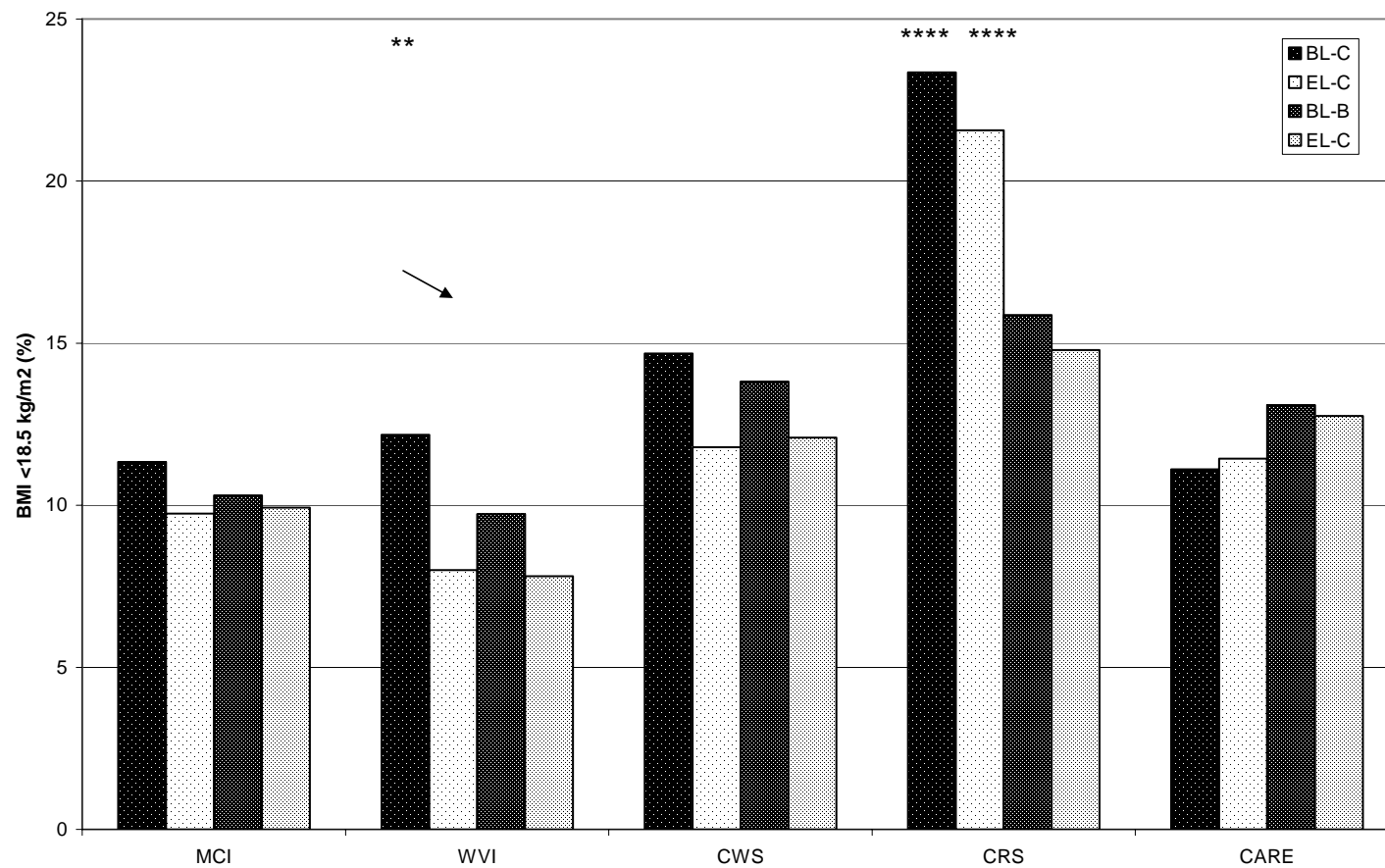
**Figure 29. Change of WH Z-score between baseline and endline for controls and beneficiaries by age group in the CRS site.**

Stars indicate that the change is significantly different between the two groups (\*p<0.10, \*\*p<0.05).



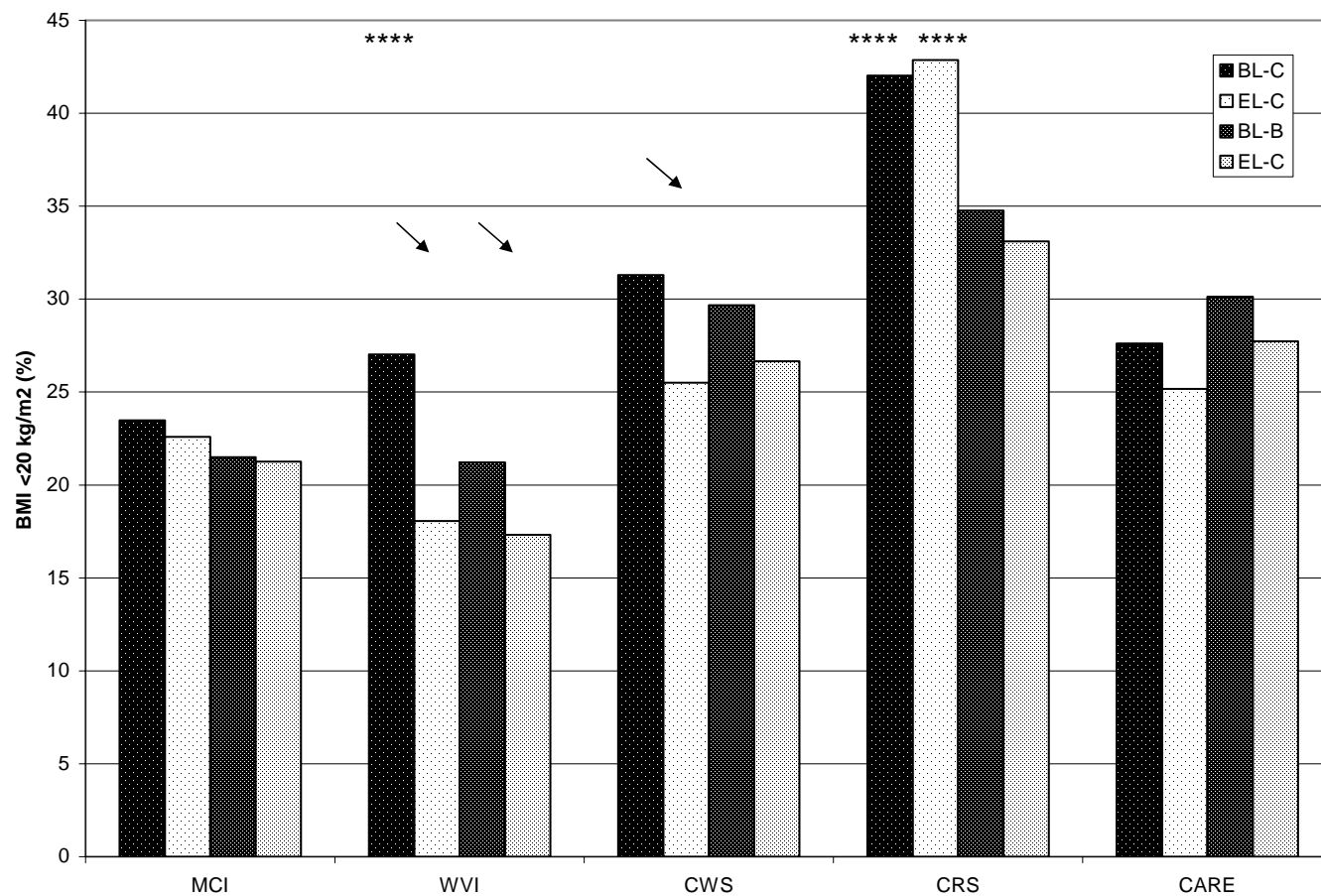
**Figure 30. Prevalence of maternal thinness (BMI<18.5 kg/m2) at baseline (BL) and endline (EL) among controls (C) and beneficiaries (B) by site.**

Arrows indicate a significant change between BL and EL within a group ( $p<0.05$ ). Stars indicate a significantly different prevalence between B and C at BL or EL ( $**p<0.05$ ,  $***p<0.001$ ).



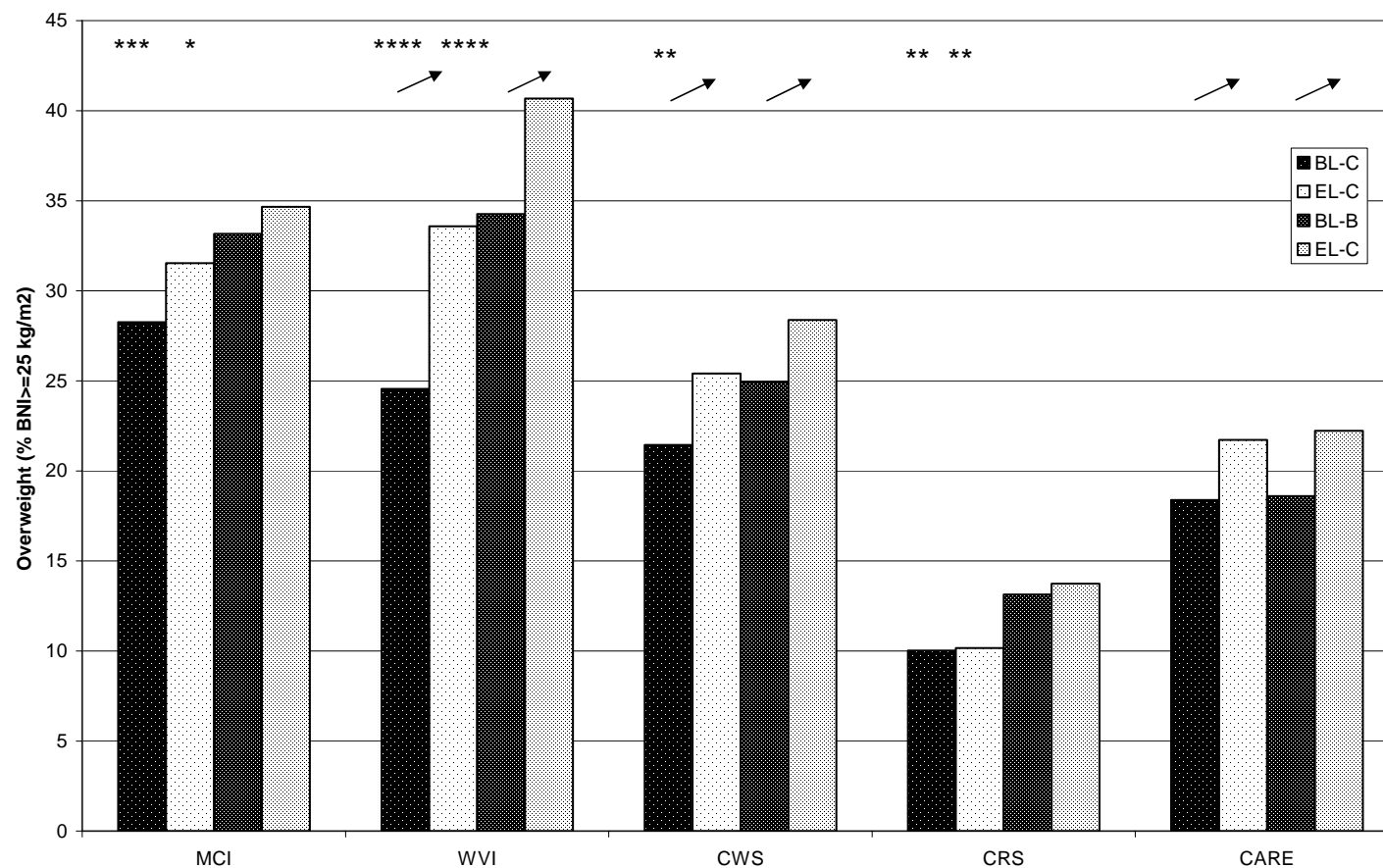
**Figure 31. Prevalence of maternal thinness (BMI<20 kg/m2) at baseline (BL) and endline (EL) among controls (C) and beneficiaries (B) by site.**

Arrows indicate a significant change between BL and EL within a group ( $p<0.05$ ). Stars indicate a significantly different prevalence between B and C at BL or EL ( $****p<0.001$ ).



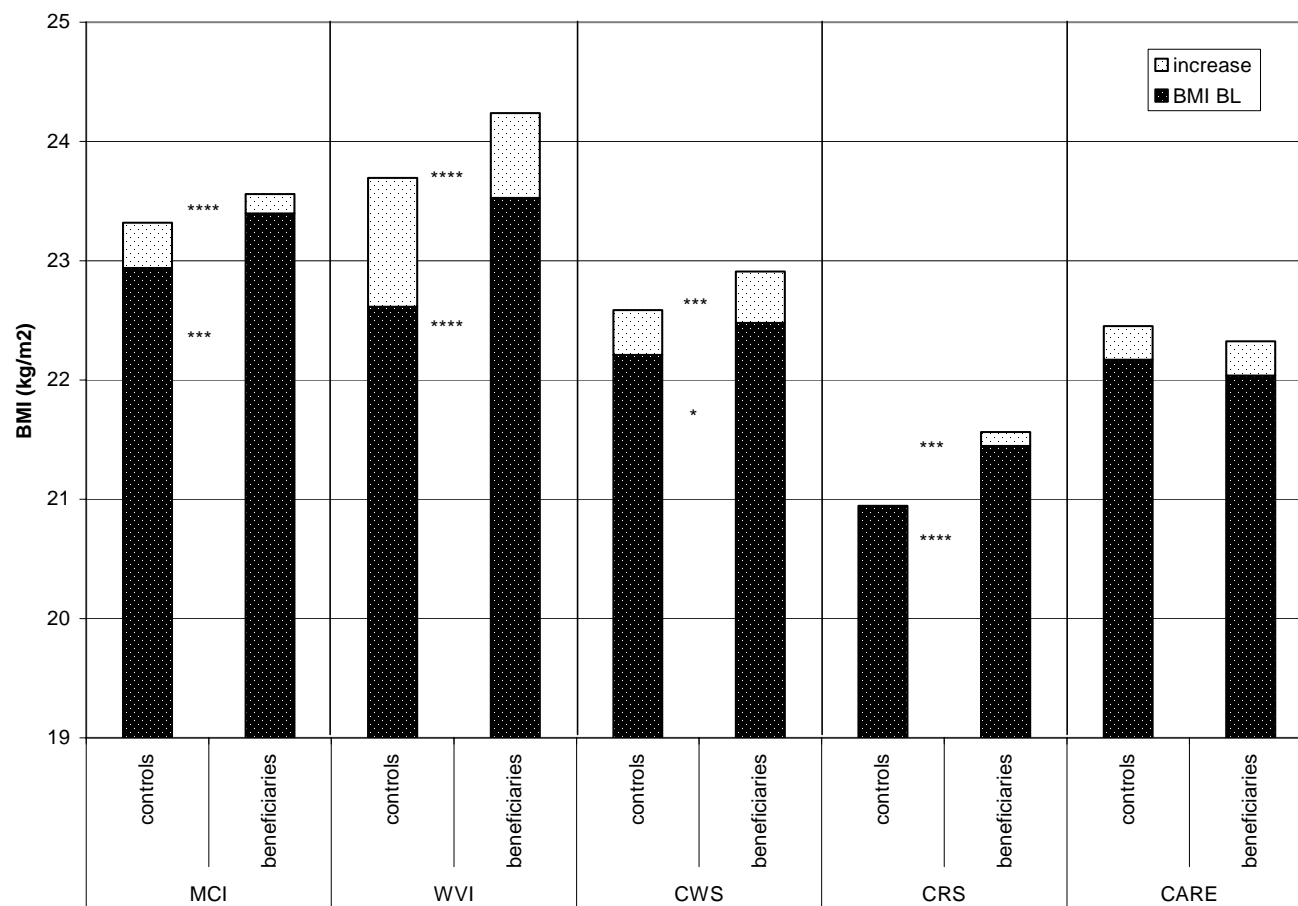
**Figure 32. Prevalence of maternal overweight (BMI>25 kg/m<sup>2</sup>) at baseline (BL) and endline (EL) among controls (C) and beneficiaries (B) by site.**

Arrows indicate a significant change between BL and EL within a group ( $p<0.05$ ). Stars indicate a significantly different prevalence between B and C at BL or EL (\* $p<0.10$ , \*\* $p<0.05$ , \*\*\* $p<0.01$ , \*\*\*\* $p<0.001$ ).



**Figure 33. Mother's BMI at baseline (BL) and the increase till endline, by site.**

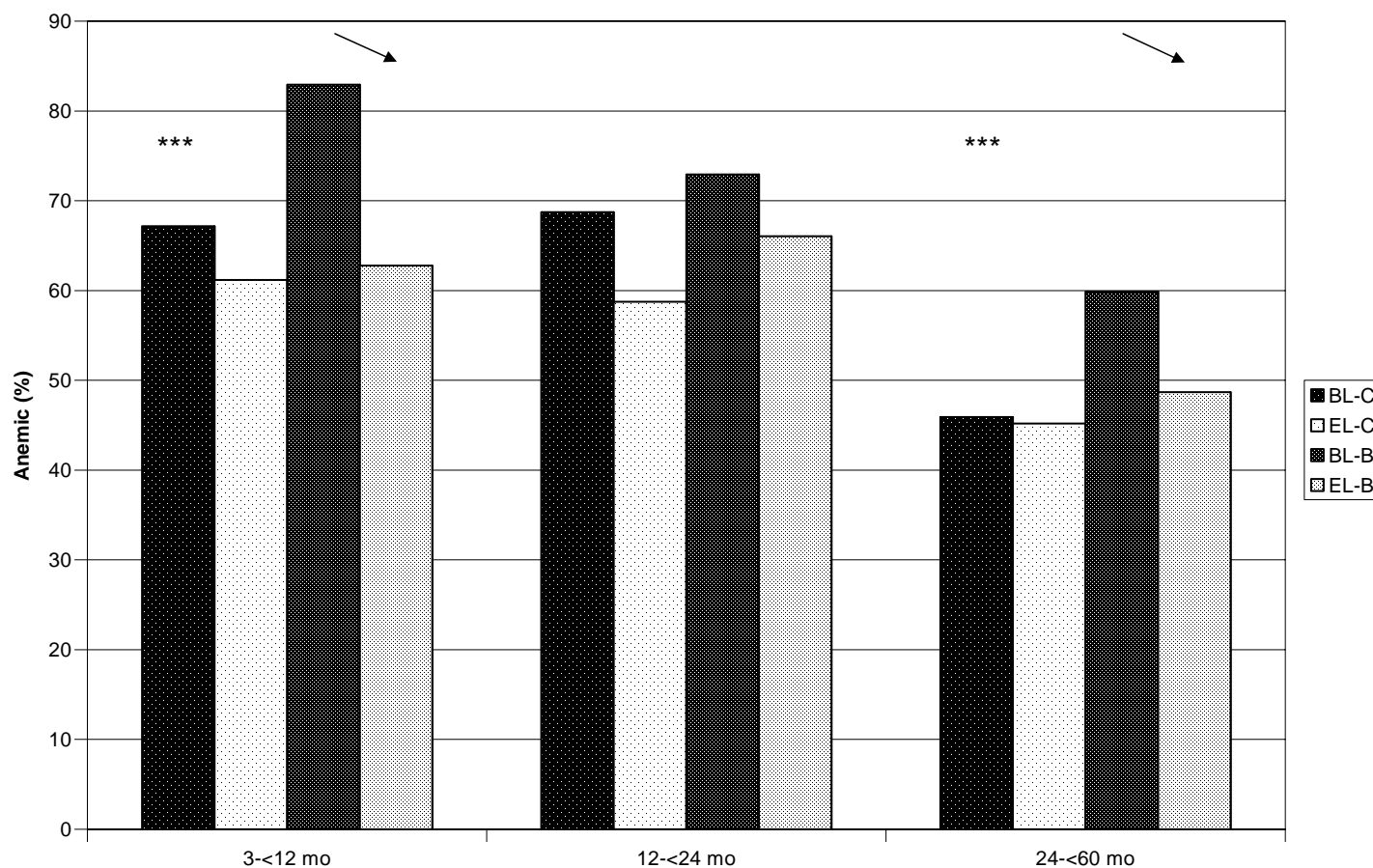
Stars indicate a significant difference between groups, either between BL values (stars between BL part of bars) or changes (stars between change part of bars) (\* $p < 0.10$ , \*\*\* $p < 0.01$ , \*\*\*\* $p < 0.001$ ).





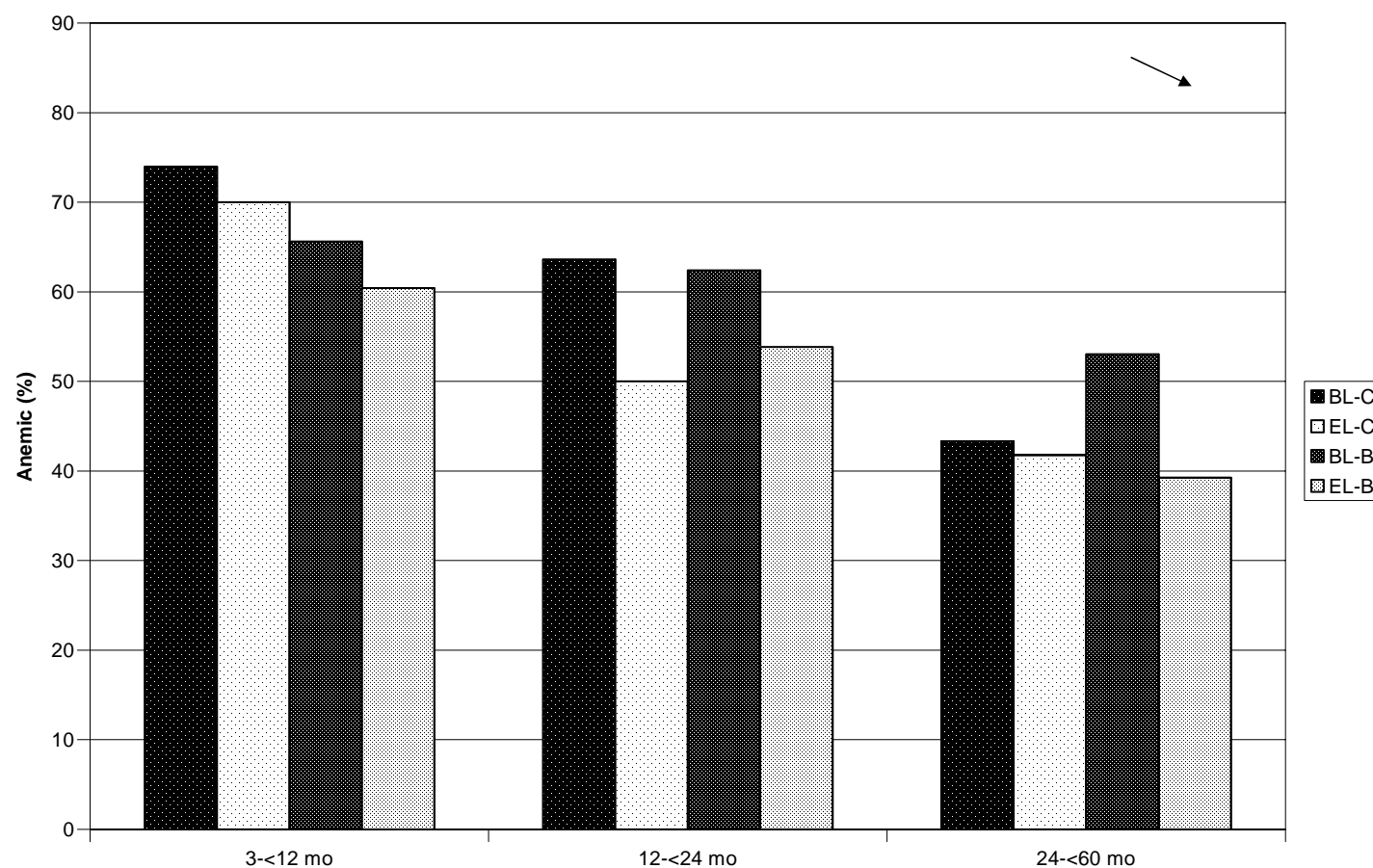
**Figure 34. MCI: Prevalence of anemia among controls (C) and beneficiaries (B) at baseline (BL) and at endline (EL) by age at baseline.**

Arrows indicate a significant change of prevalence between BL and EL within a group ( $p < 0.05$ ). Stars indicate a significant difference between B and C at BL or EL (\* $p < 0.10$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$ , \*\*\*\* $p < 0.001$ ).



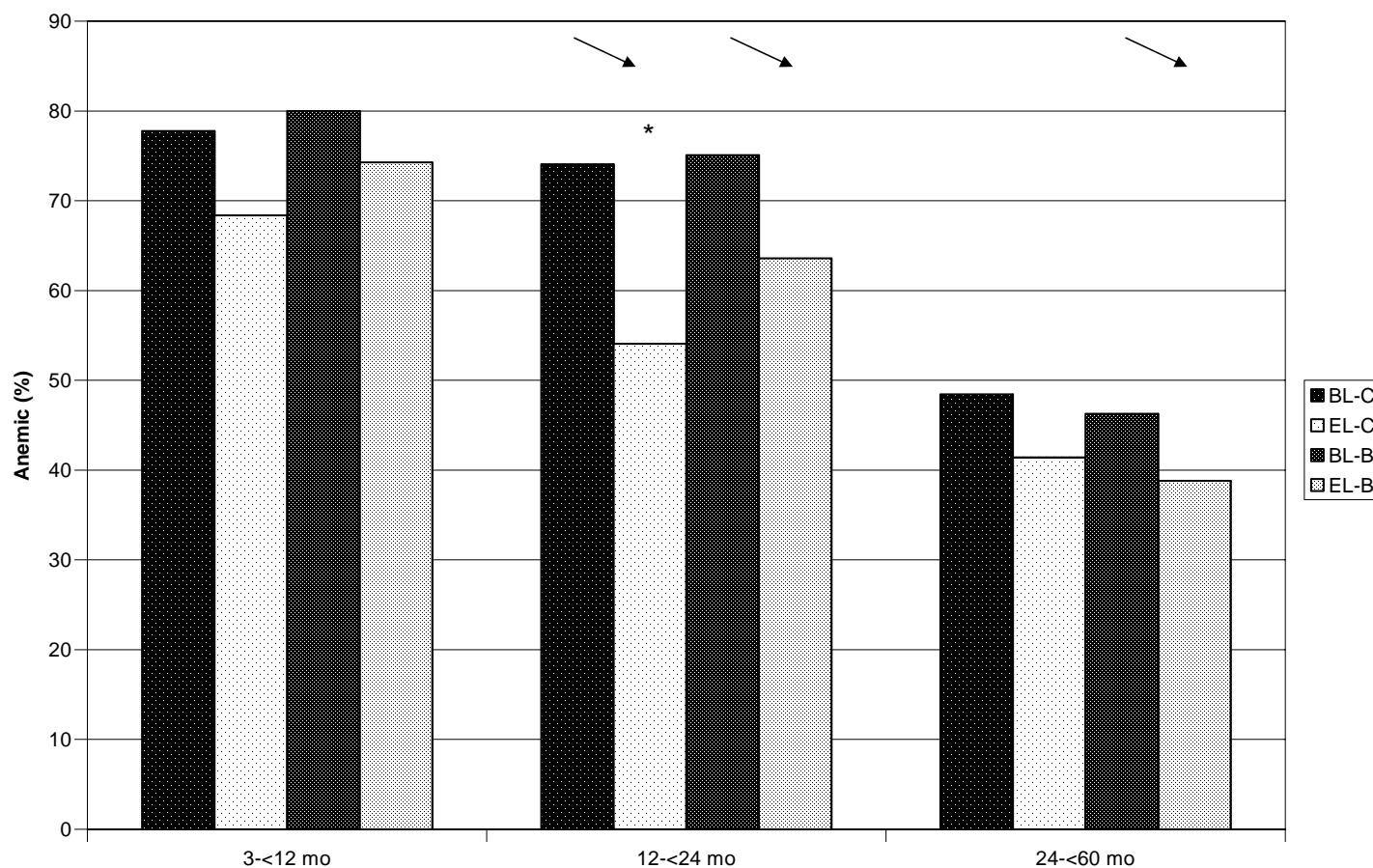
**Figure 35. WVI: Prevalence of anemia among controls (C) and beneficiaries (B) at baseline (BL) and at endline (EL) by age at baseline.**

Arrows indicate a significant change of prevalence between BL and EL within a group ( $p < 0.05$ ). Stars indicate a significant difference between B and C at BL or EL (\* $p < 0.10$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$ , \*\*\*\* $p < 0.001$ ).



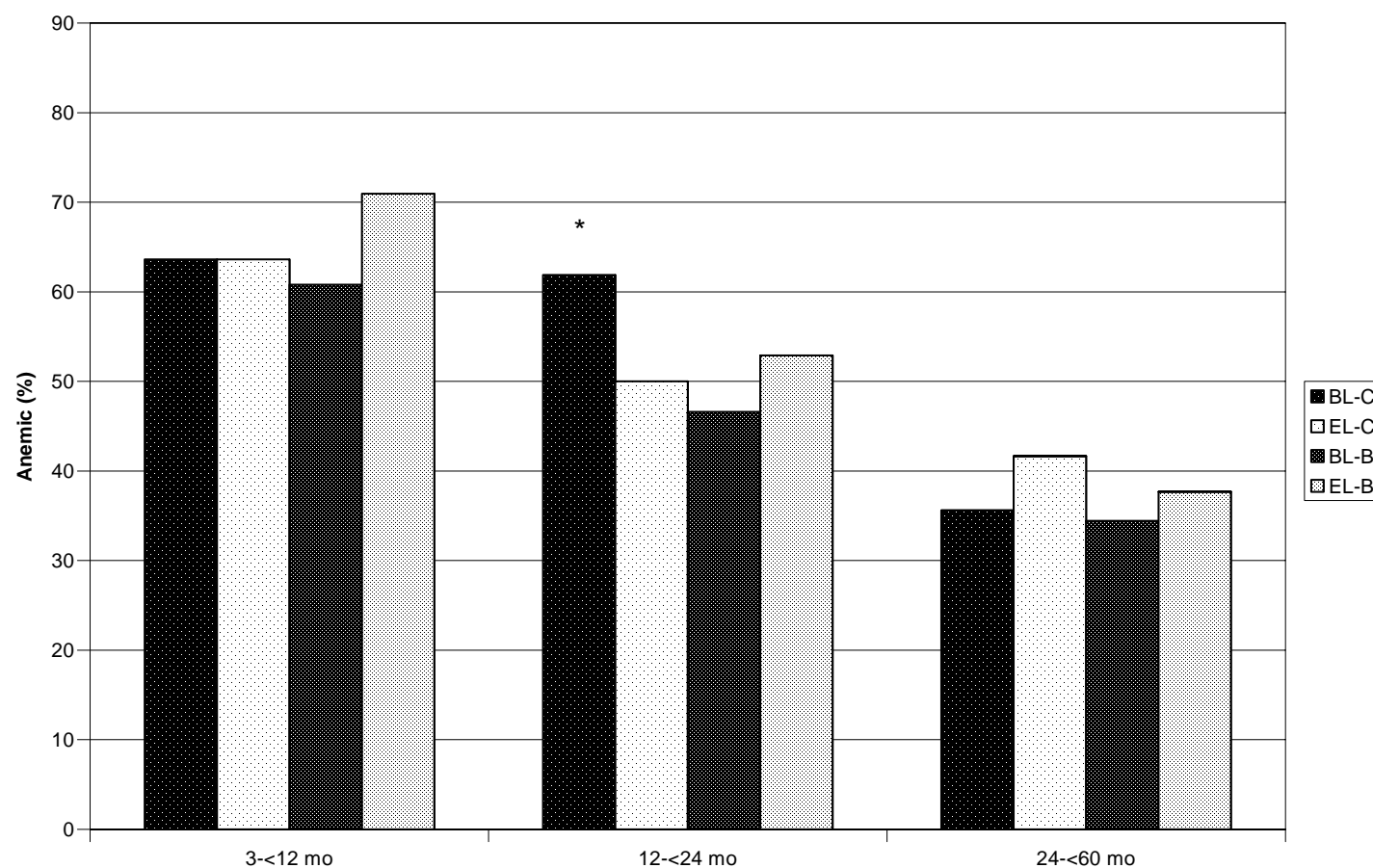
**Figure 36. CWS: Prevalence of anemia among controls (C) and beneficiaries (B) at baseline (BL) and at endline (EL) by age at baseline.**

Arrows indicate a significant change of prevalence between BL and EL within a group ( $p < 0.05$ ). Stars indicate a significant difference between B and C at BL or EL (\* $p < 0.10$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$ , \*\*\*\* $p < 0.001$ ).



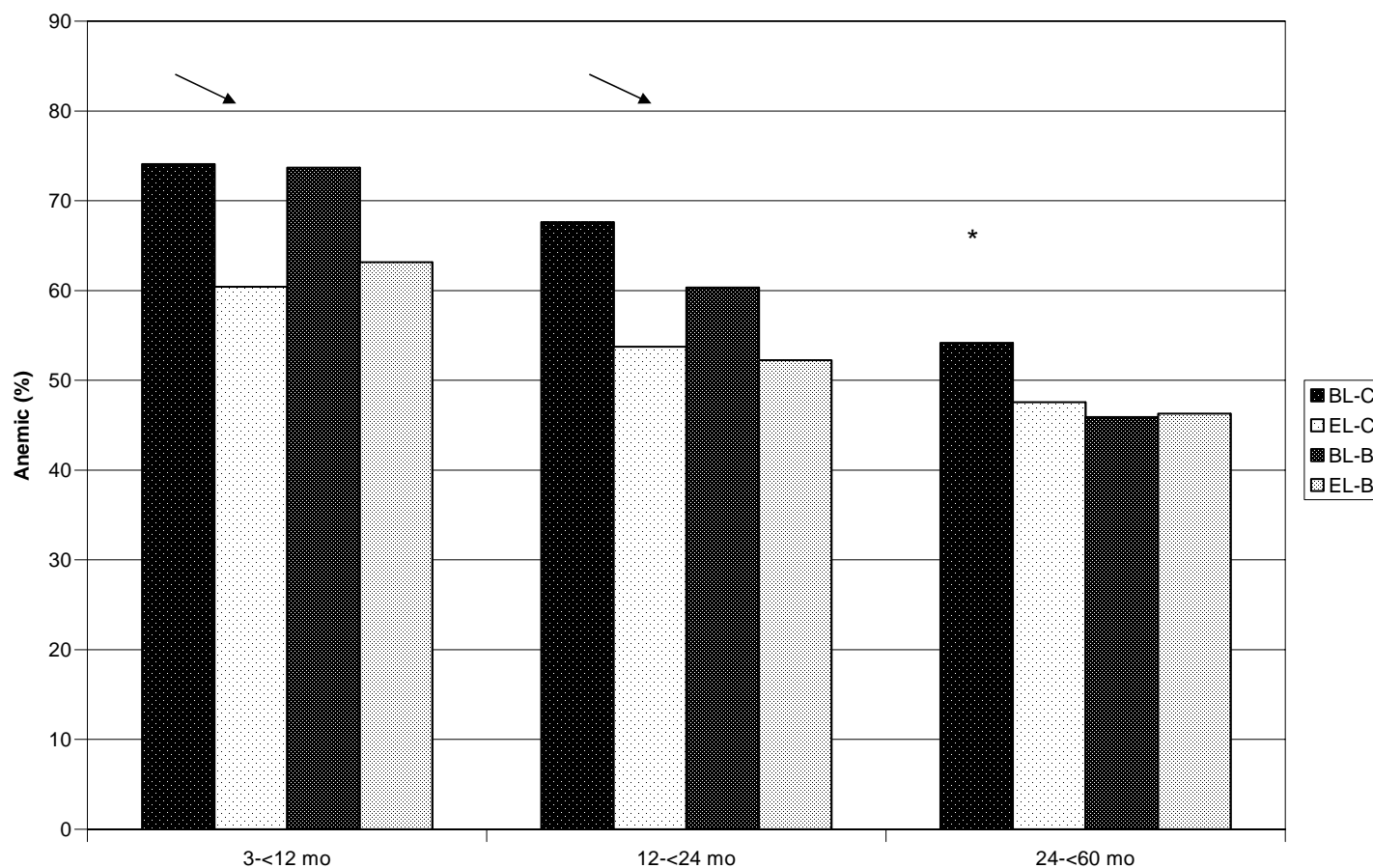
**Figure 37. CRS: Prevalence of anemia among controls (C) and beneficiaries (B) at baseline (BL) and at endline (EL) by age at baseline.**

Arrows indicate a significant change of prevalence between BL and EL within a group ( $p < 0.05$ ). Stars indicate a significant difference between B and C at BL or EL (\* $p < 0.10$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$ , \*\*\*\* $p < 0.001$ ).



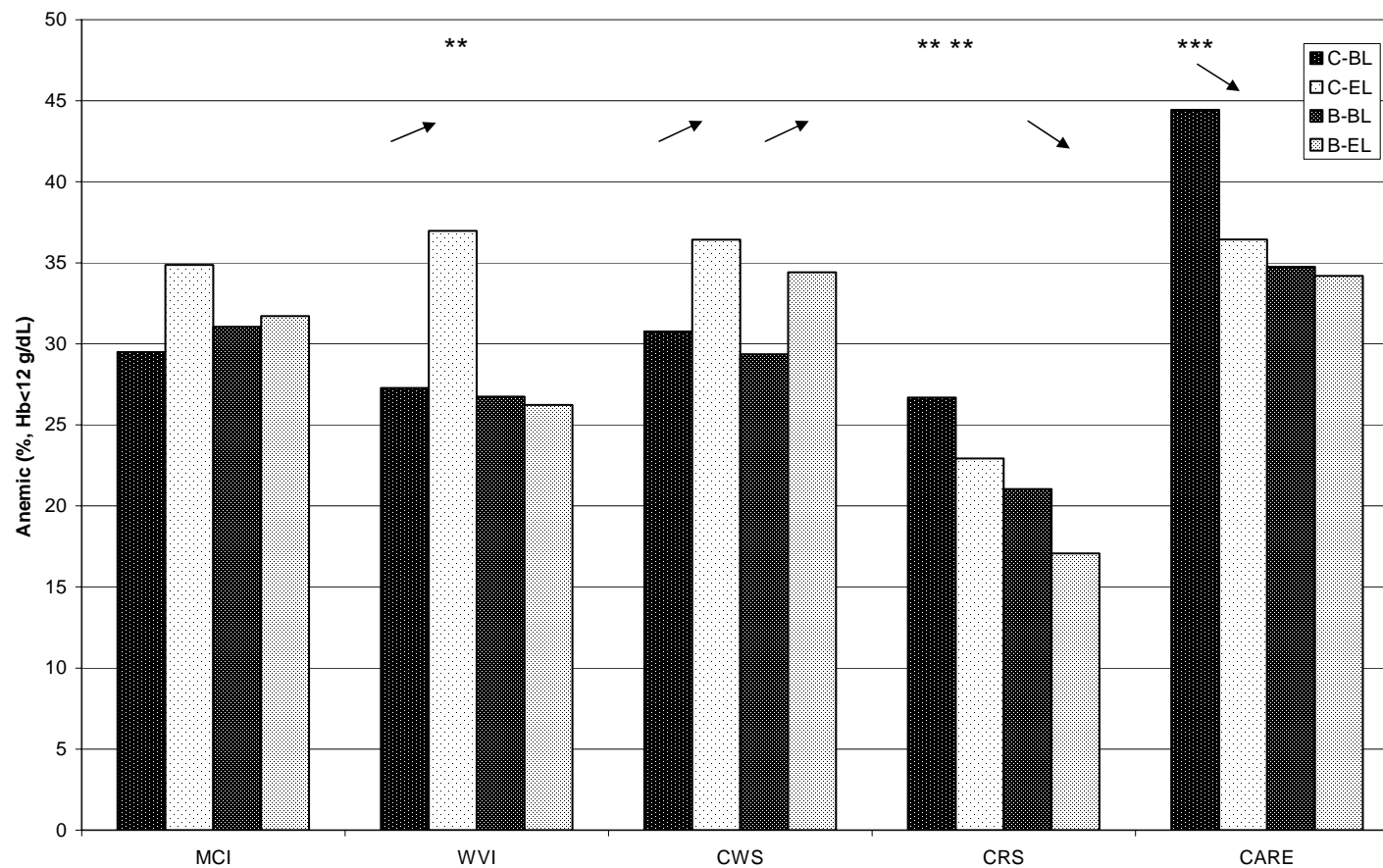
**Figure 38. CARE: Prevalence of anemia among controls (C) and beneficiaries (B) at baseline (BL) and at endline (EL) by age at baseline.**

Arrows indicate a significant change of prevalence between BL and EL within a group ( $p < 0.05$ ). Stars indicate a significant difference between B and C at BL or EL (\* $p < 0.10$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$ , \*\*\*\* $p < 0.001$ ).



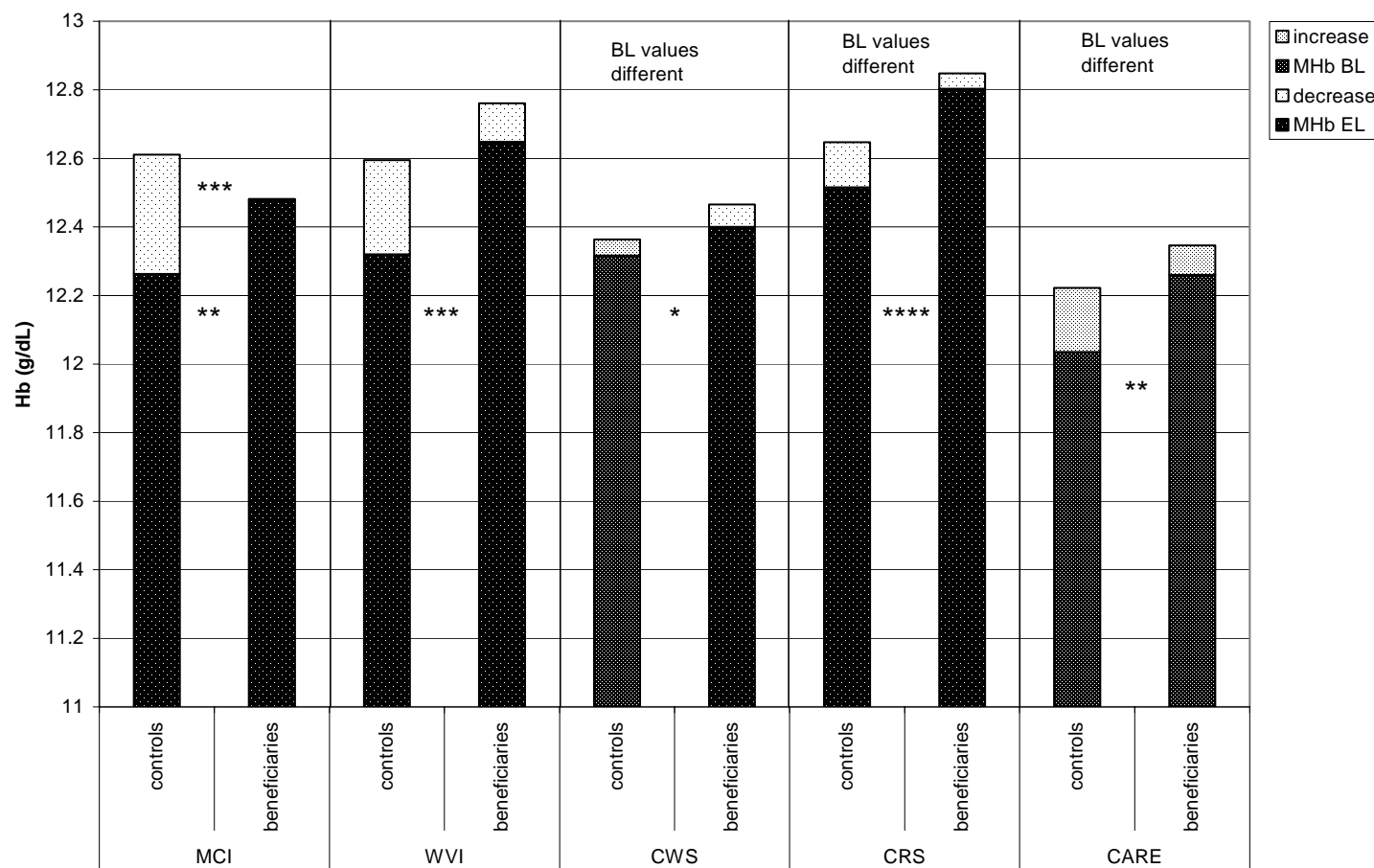
**Figure 39. Prevalence of maternal anemia among controls (C) and beneficiaries (B) at baseline (BL) and at endline (EL) by site.**

Arrows indicate a significant difference between BL and EL within a group ( $p < 0.05$ ). Stars indicate a significant difference between C and B at BL or EL (\* $p < 0.10$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$ ).



**Figure 40. Mothers' Hb at endline (EL) and the decrease from baseline (BL) to EL, or in case of an increase of Hb, Hb at BL and the increase, per group per site.**

Stars indicate a significant difference between groups, either between BL/EL values (stars between BL/EL part of bars) or changes (stars between change part of bars) (\*p<0.10, \*\*p<0.05, \*\*\*p<0.01, \*\*\*\*p<0.001).



### **4.3. Programmatic impact of FFW**

The range of TAP FFW activities included community infrastructure projects (building or renovating MCKs, wells, sidewalks and drainage, posyandu, community centers, roads); urban and rural agriculture; fisheries; solid waste management; skills training and income generation; health and nutrition education; and peacebuilding in conflict prone areas. Recognizing that a wide range of factors can contribute to nutritional status, the FAM activity collected information related to some (but not all) of these activities. For the purpose of this report, selected indicators are presented including latrine access, access to home gardens, drinking water source, household debts, household expenditure, and use of FFW benefit.

It should be noted that in all sites, TAP NGOs also implemented complementary feeding programs with varying degrees of overlap with FFW areas. These complementary feeding and health programs were usually implemented in conjunction with the posyandu system. Information on posyandu attendance and participation in complementary feeding programs is presented in the Nutritional Impact section of this report. However, data on control children that participated in the complementary feeding program of the TAP NGOs during anytime of intervention period were excluded from the analysis of nutritional impact, in order to maintain a true control group for the comparison.

Before presenting the results per site, we will discuss the different indicators included in this section of the report as well as the way they have been analyzed and presented.

#### *4.3.1. Indicators of programmatic impact*

##### **4.3.1.1. Latrine access**

Information was collected at each round about the place typically used by the household for defecation (closed latrine, open latrine, river/pond/beach, bush/open space/garden, or other). Because the main interest was the use of closed latrines, only this information is presented. Recognizing that improved access to latrines can benefit an entire community (not only FFW participants), we selected the communities (RWs) that were involved in the first round of data collection in each site, and report data for any households in those communities over time, presenting the information by actual date of data collection.

##### **4.3.1.2. Access to gardens**

Respondents were asked at each round if the household had access to a home garden for agricultural production. Recognizing that improved access to gardens can benefit an entire community (not only FFW participants), we selected the communities (RWs) that were involved in the first round of data collection in each site, and report data for any households in those communities over time, presenting the information by actual date of data collection. This approach is also appropriate to reflect any seasonality of gardens.

##### **4.3.1.3. Source of drinking water**

Information was collected at each round about the source of drinking water for the household. Potential responses were grouped into three categories: closed water source (including tap, handpump, artesis, closed well), open water source (including pond, river, open well, open



spring, rainwater, other), and bought water. Recognizing that improved water sources can benefit an entire community (not only FFW participants), we selected the communities (RWs) that were involved in the first round of data collection in each site, and report data for any households in those communities over time, presenting the information by actual date of data collection. This approach is also appropriate to reflect any seasonality of water sources.

#### 4.3.1.4. Household debt in the previous month

At each interview, mothers were asked if the household had debts in the previous month. This information is presented for BL (first round that the household entered FAM) and EL (last round of participation in FAM), for households that contributed data to both time points. Household savings (existence and use of) was also examined as an indicator of household economic status, but because there was no notable impact of the programs on savings, only the information for debt is presented.

#### 4.3.1.5. Use of the FFW benefit

At each survey round, FFW participants were asked if they consumed (yes or no), shared (yes or no), and/or sold (yes or no) the FFW benefit (including all commodities, but not specific to each commodity). This information was analyzed for the last round of participation in FAM only.

#### 4.3.1.6. Household expenditure in previous week

As another approach to better understand the ‘income effect’ of the FFW programs, data were collected at each round on household expenditure. Respondents were asked the amount of money the household spent in the previous week on more than 20 distinct items and categories of expenditure on specific foods, transportation, education, clothes, housing, etc. These amounts were further categorized into broad areas (all food, animal source foods, plant source foods, education and health, etc.), and the amount was divided by the total weekly expenditure, to calculate the proportion of weekly expenditure devoted to various categories of expense. In order to avoid confounding from local price variations, the ‘true’ R1 and R2 are compared instead of the ‘virtual’ BL and EL. Comparisons were made for all households that participated in the FAM for the ‘true’ R1 and R2. Households that had already received the FFW benefit at R1 were excluded from the analysis since the impact of the benefit on spending was assumed to be immediate. The average (median) proportion of expenditure is presented for key categories in each site.

### 4.3.2. *Programmatic impact in TAP FFW implementation sites*

#### 4.3.2.1. Programmatic impact in MCI, Jakarta

##### 4.3.2.1.1. Latrine access (Figure 41, p72)

TAP beneficiary access to closed latrines increased from 38% to around 60% over the 5 rounds of data collection. Closed latrine access in the control group ranged from 74-81% over that same period. While the building of latrines was part of a broader program of MCI and not directly related to the FFW programs, the integration of these programs and the benefit to the community is evident. The large difference in closed latrine access at the first round (38% beneficiaries vs. 77% controls) indicates appropriate targeting of poor communities.

#### 4.3.2.1.2. Access to gardens (Figure 46, p77)

Access to home gardens also increased steadily from 5% to 26% over the 5 rounds of data collection, while 2-6% of households in control communities had access to gardens over that same period. Urban agriculture was one of the MCI FFW activities, and their realization is noticeable.

#### 4.3.2.1.3. Source of drinking water (Figure 51, p82)

The majority of control households obtained their drinking water from a closed water source, while the majority of beneficiary households bought their drinking water. Virtually none of the households obtained drinking water from an open source. The source of drinking water did not change during program implementation.

#### 4.3.2.1.4. Household debt in the previous month (Figure 56, p72)

There was no change and more beneficiary households had debt as compared to control households (52% vs. 33%), which indicates their lower socio-economic status and hence appropriate targeting.

### 4.3.2.2. Programmatic impact in WVI, Surabaya

#### 4.3.2.2.1. Latrine access (Figure 42, p73)

Access to closed latrines was highest in Surabaya, among beneficiary and control communities over the 6 rounds of data collection (ranging from 87%-92%). A previous food-for-work program of WVI in Surabaya had worked in beneficiary communities prior to the start of the FAM, which may have contributed to the already high accessibility of closed latrines in these communities.

#### 4.3.2.2.2. Access to gardens (Figure 47, p78)

There were no notable changes in access to home gardens over the 6 rounds of data collection in Surabaya, which is expected since urban agriculture was not an activity of the WVI TAP program. A slightly larger proportion of control households had garden access than beneficiaries at each round (5-8% of controls vs. 3-5% of beneficiaries).

#### 4.3.2.2.3. Source of drinking water (Figure 52, p83)

Most beneficiary and control households bought their drinking water (~72 and 68%, respectively) while others obtained it from a closed water source (~27 and 34%, respectively). The source remained the same over the six rounds of data collection.

#### 4.3.2.2.4. Household debt in the previous month (Figure 57, p88)

Comparing debt at BL and EL for all households for which both data are available, regardless of duration in the FAM, a slight decrease was observed among beneficiaries (49% to 46%) and a slight increase in the control group (31% to 36%).

### 4.3.2.3. Programmatic impact in CWS, Makassar

#### 4.3.2.3.1. Latrine access (Figure 43, p74)

Access to closed latrines increased among CWS TAP beneficiaries from 66% to 84% over the five rounds of data collection. Meanwhile, closed latrine access in the control group increased to a lesser extent, from 78% to 85%. So while beneficiaries had less access to

closed latrines in R1 (indicating appropriate targeting), access was similar at the R5. Rehabilitation of MCKs was one component of the CWS FFW programs.

#### 4.3.2.3.2. Access to gardens (Figure 48, p79)

An overall increase in access to gardens was observed among beneficiaries (5% at R1 to 11% at R5). Among controls, a slight decrease in garden access was observed (28% at R1 to 26% at R5, with a dip to 20% at R3). Urban agriculture was one component of the CWS FFW programs. However, access remained higher among the control communities.

#### 4.3.2.3.3. Source of drinking water (Figure 53, p84)

Virtually all beneficiary and control households either bought water (~50%) or obtained their water from a closed water source (~50%) at all five rounds of data collection.

#### 4.3.2.3.4. Household debt in the previous month (Figure 58, p89)

Comparing debt at BL and EL for all households for which both data are available, regardless of duration in the FAM, the proportion of control households with debt increased (48% to 59%), while among beneficiary households it stayed the same (64%).

#### 4.3.2.4. Programmatic impact in CRS, Central Java and Yogyakarta

The TAP program in Central Java was implemented with three distinct populations each year, from 2001-2003. Therefore data for community level indicators (latrines, home gardens, and drinking water source) are presented from the start and finish of 2001 TAP, 2002 TAP, and 2003 TAP. For household debt, data are presented for all households when they entered (BL) and left (EL) the FAM activity, which might have covered more than one year of program implementation. Some of the TAP FFW activities implemented by CRS (such as peace-building activities and road building for improved access to markets), were not measured by FAM, and furthermore the impacts of these activities on nutritional status would not necessarily be captured in the short term.

##### 4.3.2.4.1. Latrine access (Figure 44, p75)

Access to closed latrines in rural Central Java and Yogyakarta was lower than all urban areas. Around 20-30% of beneficiary and control households used a closed latrine, in all three program populations. The change in latrine access from BL to EL was very small and not different between beneficiaries and controls in all three years. Although CRS implemented water/sanitation activities as part of FFW in 2003 (including renovation of MCKs, installation of septic tanks, water infrastructure for bathing and watering livestock, and improvement of irrigation channels), all of these activities would not necessarily be captured by the indicator of access to a closed latrine.

##### 4.3.2.4.2. Access to gardens (Figure 49, p80)

The majority of beneficiary and control households in this rural area have access to a home garden. Change in access to gardens was similar between beneficiaries and controls in all three years of the TAP program. Improvements in the beneficiary group are not expected since CRS did not implement agriculture activities as part of TAP FFW.

#### 4.3.2.4.3. Source of drinking water (Figure 54, p85)

Beneficiary and control group access to closed drinking water sources followed similar patterns in all three years of the program. The slight increase in bought water in 2003 is likely related to the drought that affected Central Java in 2003.

#### 4.3.2.4.4. Household debt in the previous month (Figure 59, p90)

Comparing debt at BL and EL for all households for which both data are available, regardless of duration in the FAM, the proportion increased for both groups. However, this increase was larger in the control group (61% to 71%) than in the beneficiary group (65% to 70%).

#### 4.3.2.5. Programmatic impact in CARE, East Kalimantan

##### 4.3.2.5.1. Latrine access (Figure 45, p76)

Latrine access in East Kalimantan appeared to fluctuate based on seasonality, since many families move between two homes during the rainy/flood season and the dry season. Access to closed latrines was the lowest of all five sites, and was similar between beneficiaries and controls at every round of data collection except R3, when closed latrine access was higher among controls.

##### 4.3.2.5.2. Access to gardens (Figure 50, p81)

Access to home gardens increased in both groups over the four rounds of data collection, with a greater increase observed among beneficiaries (59% to 81%) than among controls (57% to 71%). Although a primary activity of the TAP FFW in this site was improved agriculture, most of the participants were farmers to begin with, so home garden access would not necessarily capture improved agricultural technologies of community gardens intended for commercial production. HKI reported adoption of improved technologies (for increased soil fertility, biological pest control, and experimentation of new crop and fish varieties) among beneficiaries to CARE at the R3 dissemination workshop in December 2003.

##### 4.3.2.5.3. Source of drinking water (Figure 55, p86)

Access to bought water or closed water sources for drinking in East Kalimantan was lowest among all FAM sites. Beneficiaries had consistently less access to these sources than controls (approximately 10-20% of beneficiaries, vs. 14-34% of controls). Patterns of change were similar within both groups (higher access to bought water or closed source at R3 and R4).

##### 4.3.2.5.4. Household debt in the previous month (Figure 60, p91)

Comparing debt at BL and EL for all households for which both data are available, regardless of duration in the FAM, the proportion of beneficiary households with debt increased (39% to 43%), while among control households the proportion decreased slightly (41% to 39%). Discussion with CARE staff indicate that this increase, observed largely in R4, may have reflected investment for production related to the FFW programs (agriculture and fisheries).

##### 4.3.2.6. Use of the FFW benefit, all sites

The food-for-work benefit in each site included:

MCI- 50kg rice per month

WVI- 44kg rice, 4 liters oil, and 6kg pinto beans per month

CWS- 50kg rice, and 4 liters oil per month

CRS- 50kg rice per month

## CARE- 50kg rice per month

In some sites, FFW households also received WSB (wheat-soya blend) for concurrent participation in the complementary feeding or health program of the NGO, however the graphs in this section refer only the FFW benefit.

Figure 61 (p92), Figure 62 (p93) and Figure 63 (p94) describe patterns of consuming, sharing, and selling the benefit as reported by beneficiaries in all 5 sites at the household's last round of involvement in FAM.

Sharing the FFW benefit is much more common in urban areas than in rural areas. The proportion of urban beneficiary households that reported sharing any of the rice was 45%, 36%, and 49% in MCI, WVI, and CWS sites respectively. In comparison, only 5% and 3% of rural beneficiaries in CRS and CARE sites reported sharing any of the rice. Consumption of at least some of the FFW benefit was high in all sites: 97%, 94%, 96%, 95%, and 99% of beneficiaries in MCI, WVI, CWS, CRS and CARE sites, respectively. The proportion of households that reported to consume all of the benefit was 50%, 50%, 44%, 86% and 96%, respectively. However, based on discussions in the field and the households' knowledge of the price of the FFW-rice on the local market, it is suspected that many more households sold at least part of their rice. The reason for the suspected underreporting of the selling of rice is that household's had been told that selling the rice was prohibited. More information on this issue is available for the CRS site. Expenditure data and qualitative investigation in this site suggest that TAP participants in Central Java sell a considerable part of the FFW rice in order to buy a preferred variety of local rice.

Some more information on this issue is available for the CRS sites. Expenditure data and qualitative investigation in this site suggest that TAP participants in Central Java sell a considerable part of the FFW rice in order to buy a preferred variety of local rice.

### 4.3.2.7. Household expenditure

Household expenditure in this report is expressed as the average (median) proportion of previous week expenditure devoted to the described categories. For example, a median proportion of 70% expenditure on food means that 50% of households devoted 70% or less of their previous week expenditure to food, and 50% of households devoted more than 70% of their previous week expenditure to food. In order to avoid changes of food prices and inflation to affect the comparisons made between beneficiaries and controls, analyses were done using data collected in 'true round' one and 'true round' two and only among households that had not yet received the FFW-benefit.

#### 4.3.2.7.1. Expenditure on food (Figure 64, p95)

The proportion of expenditure for all food decreased among WVI beneficiaries, to a larger extent than the small decrease observed among WVI controls. For MCI, the median proportion was ~70% in both groups at both rounds. In the CWS site, both controls and beneficiaries decreased the proportion of expenditure for food, a change that largely reflects the decrease in the proportion of expenditure for rice in that site. For CRS, an increase was observed in both groups between rounds. And for CARE, a slight increase in the median proportion was observed among control households, while the proportion remained about the same among beneficiaries. The median proportion of expenditure for food was highest in rural areas.

#### 4.3.2.7.2. Expenditure on rice (Figure 65, p96)

Beneficiaries in all sites decreased spending on rice (more than 50% did not spend money for rice whilst receiving the rice from the FFW program), except in the CRS site. A likely explanation for the observed CRS expenditure on rice, even during round 2 when the rice had been received is two-fold. First, the majority of FFW participants in Central Java were also rice farmers, and the method of data collection converts the value of self-produced rice and other foods to expenditure. Second, qualitative evidence suggests that beneficiaries sold the FFW rice in order to purchase local rice of preferred quality, and therefore expenditure for local rice was maintained (see Use of FFW benefit section above).

#### 4.3.2.7.3. Expenditure on food from animal sources (Figure 66, p97)

Notable differences in expenditure on animal foods between groups were observed in the MCI site (increase among beneficiaries but not controls), in the CWS site (decrease among controls while no change among beneficiaries), in the CARE site (increase among beneficiaries but not controls), and in the CRS site (>50% of beneficiaries spending some money for animal foods during the previous week in R2, but <50% of controls). No notable differences were observed for either group in the WVI site.

As an example of what these changes represent, the median amount of weekly expenditure of MCI beneficiaries in Jakarta was approximately 115,000Rp at R1 and R2. Therefore, the observed 4% increase of expenditure on animal foods (from 6% to 10%) among beneficiaries would represent an additional ~5,000Rp devoted to foods from animal sources. At current prices, this could mean an additional 10 eggs, or half a chicken, or ½ kg fish for the household in a week.

#### 4.3.2.7.4. Expenditure on food from plant sources (Figure 67, p98)

No notable differences between groups were observed in urban areas (MCI, WVI, and CWS). In the CRS site, there was an increase among beneficiaries relative to controls, and in the CARE site the increase among beneficiaries was larger than the increase among controls.

#### 4.3.2.7.5. Expenditure on sugar and oil (Figure 68, p99)

Two of the five NGOs (WVI and CWS) gave oil as part of the FFW benefit. A larger decrease on sugar and oil expenditure was noted among WVI beneficiaries compared to controls. A similar decrease was noted for both groups in the CWS site, and a similar increase was noted for both groups in the CRS site. No changes were observed on sugar and oil expenditure in the MCI site. For CARE, controls decreased sugar and oil expenditure while beneficiaries increased, most likely related to the added real income effect of the rice benefit.

#### 4.3.2.7.6. Expenditure on clothes, house, and miscellaneous household expenses (Figure 69, p100)

MCI, CWS, and CARE beneficiaries all increased spending in this category compared to controls. No notable differences were observed among WVI or CRS beneficiaries or controls. As noted above in the example of animal food expenditure, a 5% increase (as observed among CWS beneficiaries) would be equivalent to approximately Rp5,000-7,000 per week.

#### 4.3.2.7.7. Expenditure on snacks, investment, education/health, savings/social activities/recreation

These categories of expenditure were also examined in the analysis, as part of the effort to understand the real income effect of the FFW benefit on food consumption, health seeking behavior, and household economics. However, since no impacts were observed, the results are not reported. The lack of observed impact for spending on investment, education/health, and savings/social/recreation may be related to the irregular nature of these expenses (FAM activity only enquired about expenditure during the previous week) as well as their comparatively small proportion of overall expenditure (compared to food items, for example) among the poor.

#### 4.3.3. *General observations on programmatic impact*

##### 4.3.3.1. Latrine access

Closed latrine access was higher in urban areas compared to rural areas. However, the lack of crowding in rural areas may result in a more sanitary environment overall, which is consistent with the relatively lower rates of diarrhea observed in rural areas compared to urban areas (see Nutrition Impact section of this report). Note that renovation of previously existing MCKs or latrines in the MCI, CWS, CRS and WVI sites may not necessarily be captured as an increase in closed latrine access, since households may have also used the same closed latrine prior to the renovation. Some increase in access to closed latrines was noticed among MCI and CWS beneficiaries, while access was already very high for WVI beneficiaries and controls at BL (~90%).

##### 4.3.3.2. Access to gardens

MCI, CWS, and CARE implemented FFW agriculture activities. Increased access to home gardens was noted among MCI and CARE beneficiaries. In the CWS site, a greater proportion of beneficiaries had gardens than did controls, at all rounds. In all three of these sites, gardens started in new TAP communities at R2 or later, would also not be captured in this analysis, which only followed communities present at R1.

FFW activities related to gardening in these sites included clearing land, planting, or promotion of improved technologies, and therefore harvest, consumption, or sale of produce may not yet have occurred during this period. The longer term benefits of home garden access (increased dietary diversity and/or increased income from sale of produce), were not yet observed in this evaluation (vitamin A intake and household economic status). This was most likely due to (1) the limited timeframe, and (2) the fact that increase in the proportion of households with a garden were relatively small (10-20%) and a substantial proportion of beneficiaries remained without home garden access. However, the positive impacts of home gardens on nutrition and health status as well as poverty reduction in the long term are well documented in other countries in the region, and therefore these activities should continue to be promoted.

##### 4.3.3.3. Source of drinking water

Almost 100% of beneficiary and control households in urban areas either bought or accessed a closed source for drinking water. However, the data presented do not indicate the quality of the water from these sources. No impact of the programs was noted on the category of drinking water source. However, FFW activities to rehabilitate previously existing water sources in the MCI, WVI, CWS, and CRS sites may not necessarily be reflected as improvements based on this data.

#### 4.3.3.4. Household debt in the previous month

In WVI and CWS sites, the proportion of beneficiary households with debt either decreased or stayed the same while the proportion of indebted control households rose over the duration of the FAM activity. In the MCI site, no differences were observed. In the CRS site, the increase among beneficiary households was less than the increase among control households, and in the CARE site, the observed small increase of beneficiary households with debt may be related to investment for production. However, all changes of proportion of households with debt that were noted among control and beneficiary households were small.

#### 4.3.3.5. Use of FFW benefit

Sharing the FFW benefit was common in urban areas compared to rural areas. This is supported by qualitative investigation that the FFW benefit is not only an added 'real income', but also serves to elevate the social position of the family in the community when they are able to share food with neighbors and extended family members. In rural areas, less sharing is reported, perhaps related to the more dispersed nature of these communities and the fact that more households produce rice. It is expected that the selling of the benefit is underreported, as has been particularly concluded based on qualitative assessments in the CRS site. With regard to the sharing of rice, while that increases the social status of the household, it is less likely to contribute to increased economics (no added 'real income' nor income from selling) and hence to improved nutritional status.

#### 4.3.3.6. Expenditure

The transfer of expenditure on rice to expenditure on higher quality food items is a key pathway in the model for the evaluation of nutritional impacts of FFW. Shifts of expenditure to animal foods among beneficiaries, or maintained expenditure for beneficiaries while controls decreased, is noted in 3 of the 5 sites (MCI, CWS, CARE). Examination of other expenditure categories indicates that other increased expenditure was diffused among a range of household priorities, most notably clothes and household expenses (MCI, CWS, CARE), foods from plant sources (CARE and CRS), and sugar and oil (CARE). The practical significance of these changes is demonstrated in the example from Jakarta, where a 4% increase in proportion of expenditure would represent about 5,000Rp more per week spent for a substantial amount of eggs, chicken, or fish, as discussed above.



## **Figures for findings on programmatic impact**

(Per site, grouped by indicator)

**Figure 41. MCI: Closed latrine access**

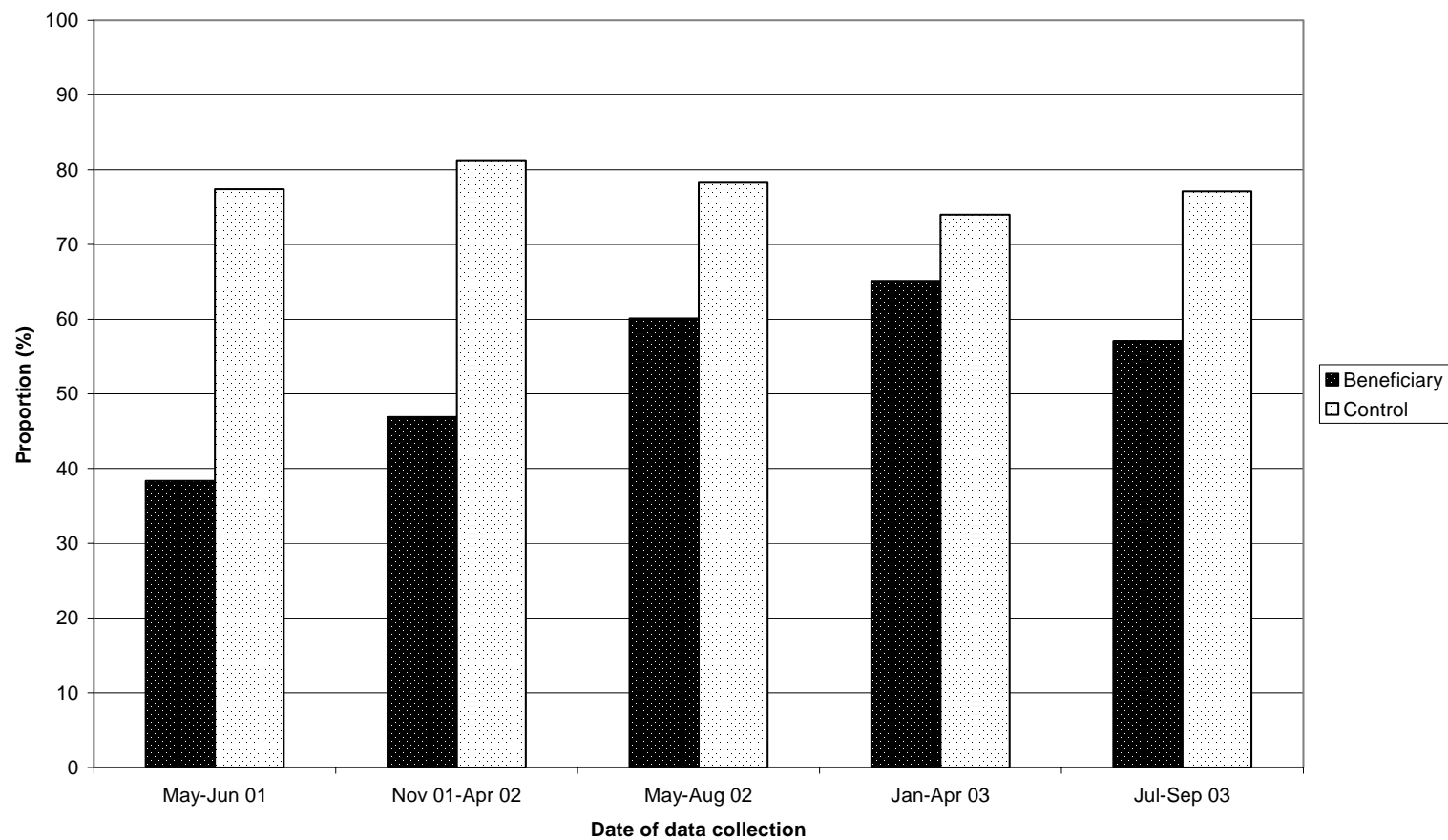
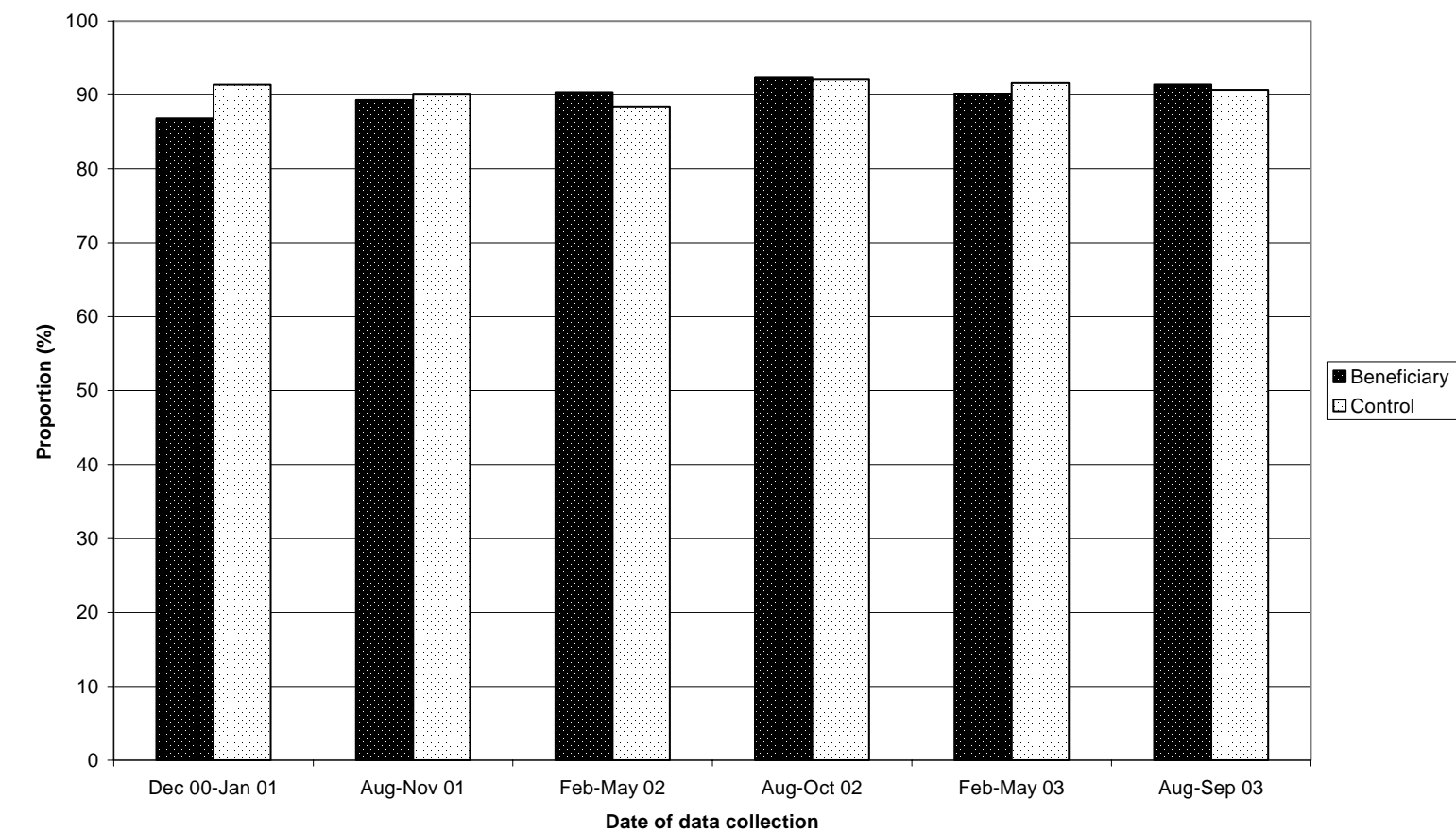
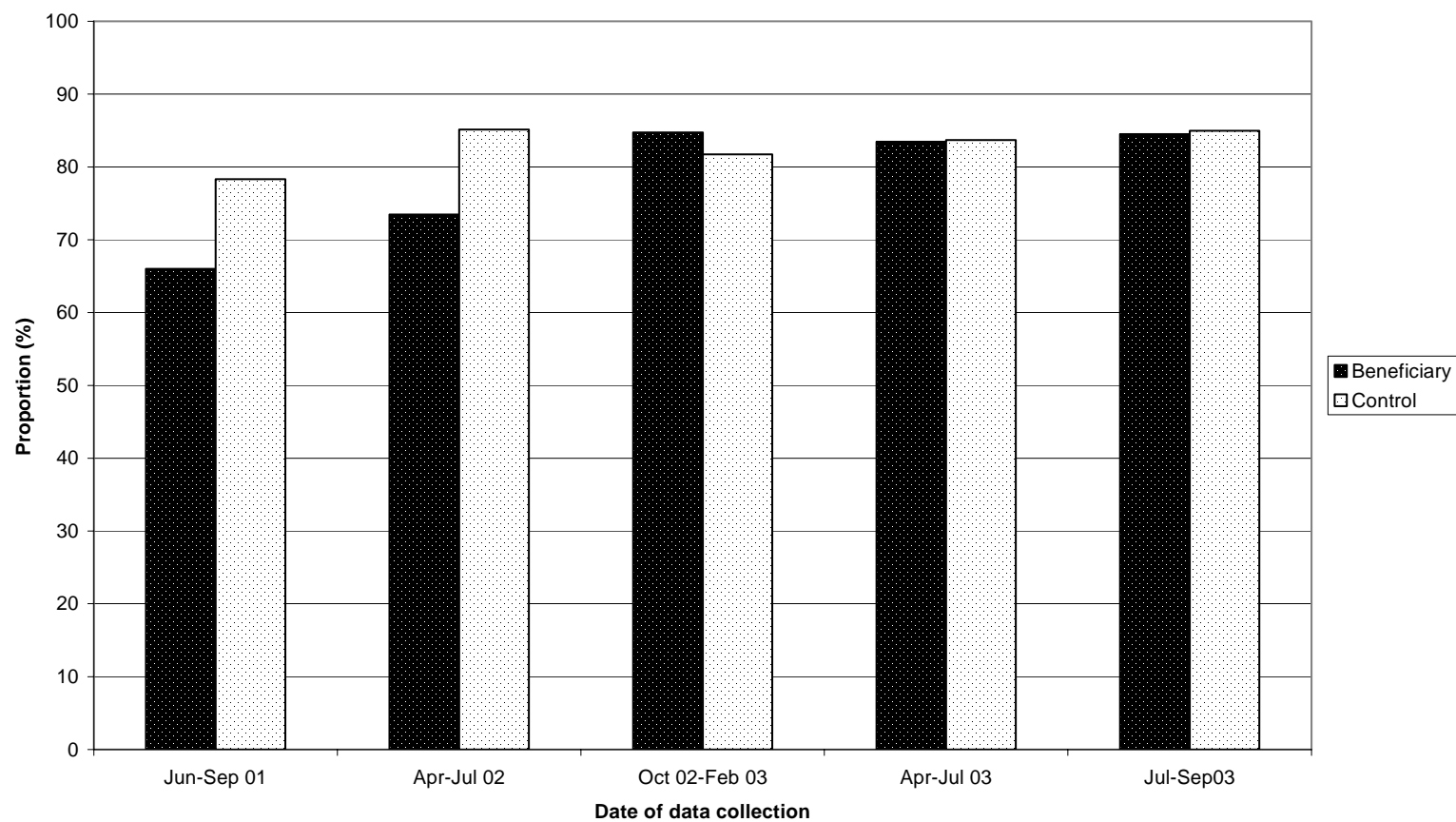


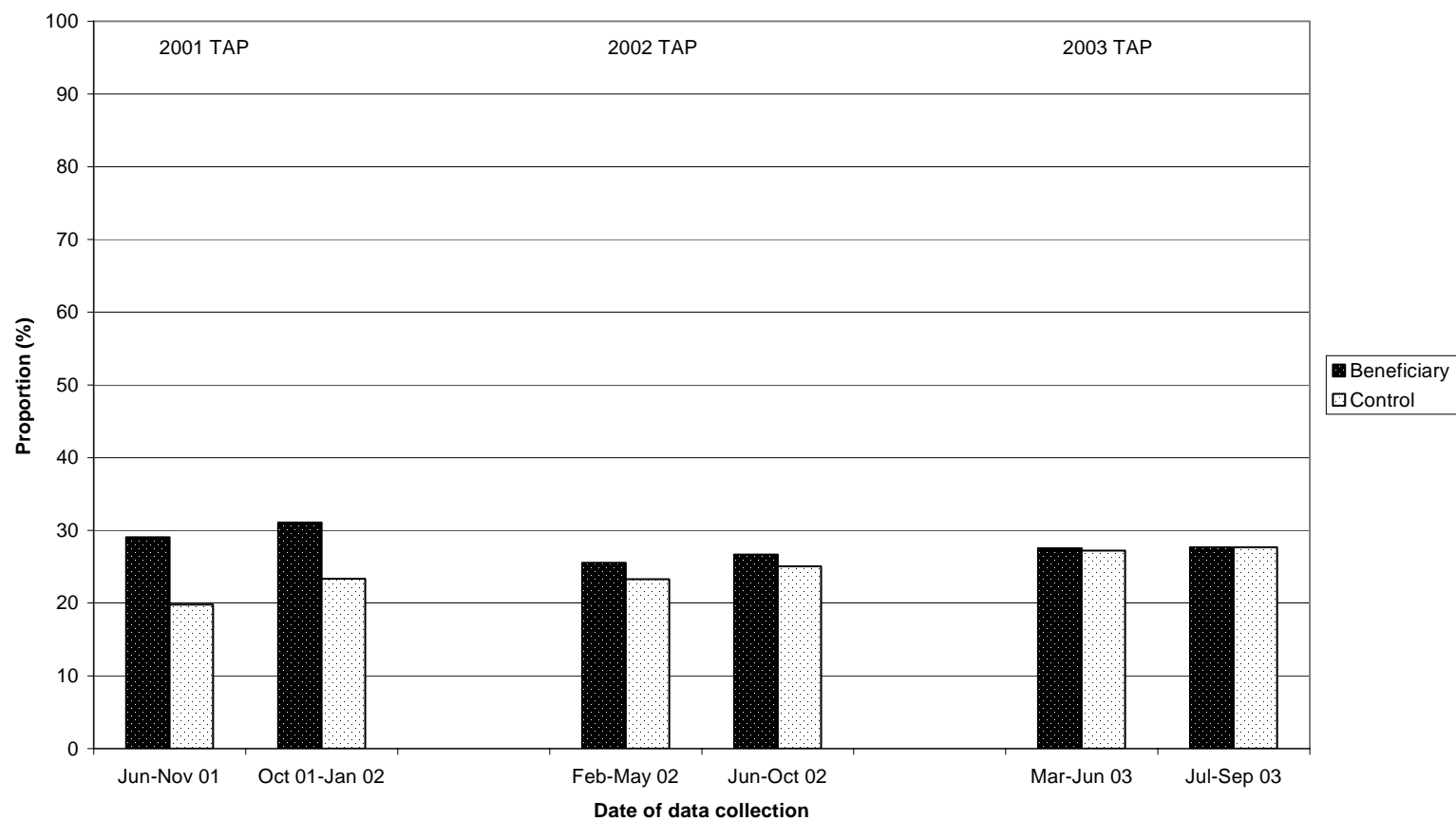
Figure 42. WVI: Closed latrine access



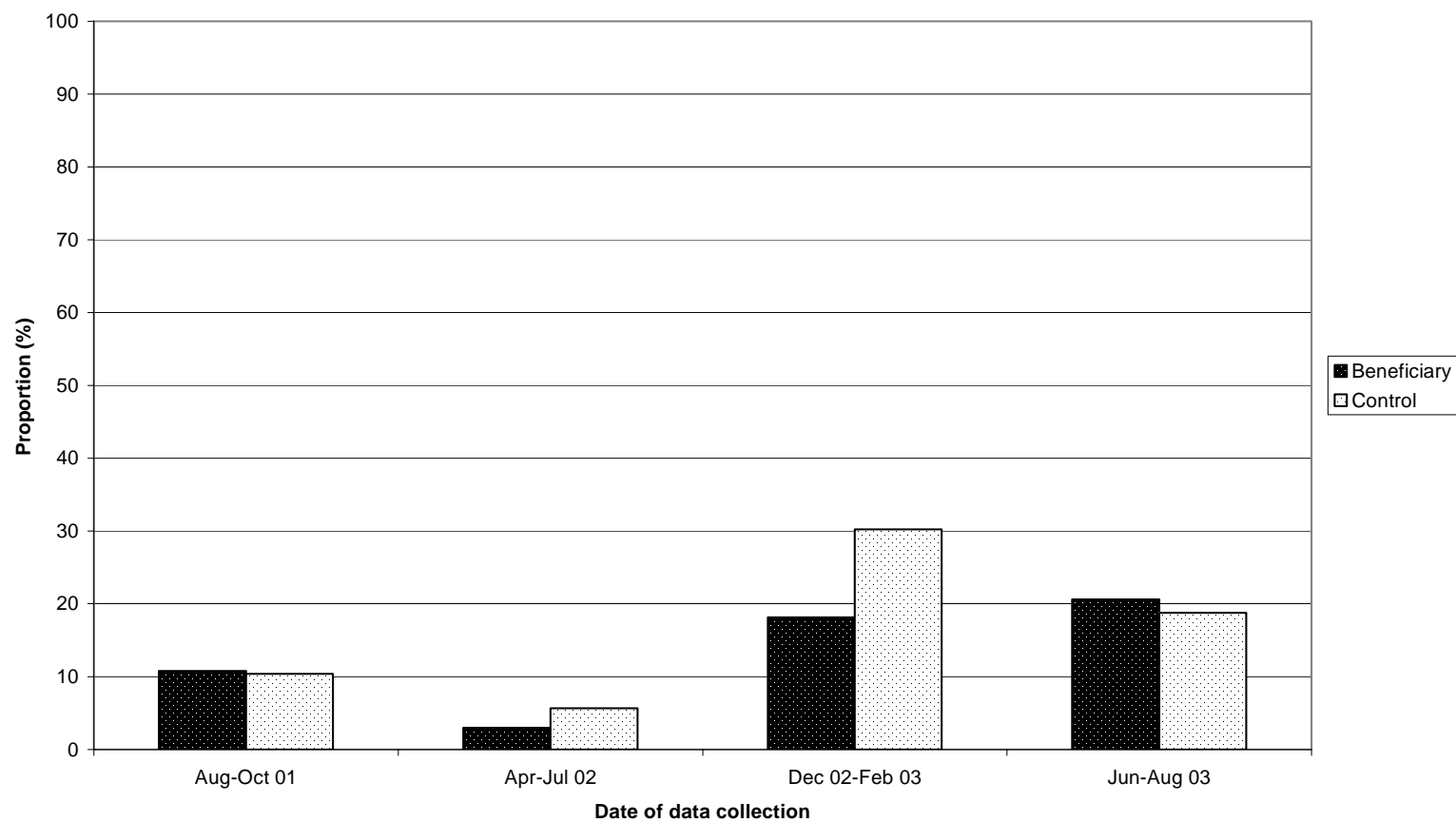
**Figure 43. CWS: Closed latrine access s**



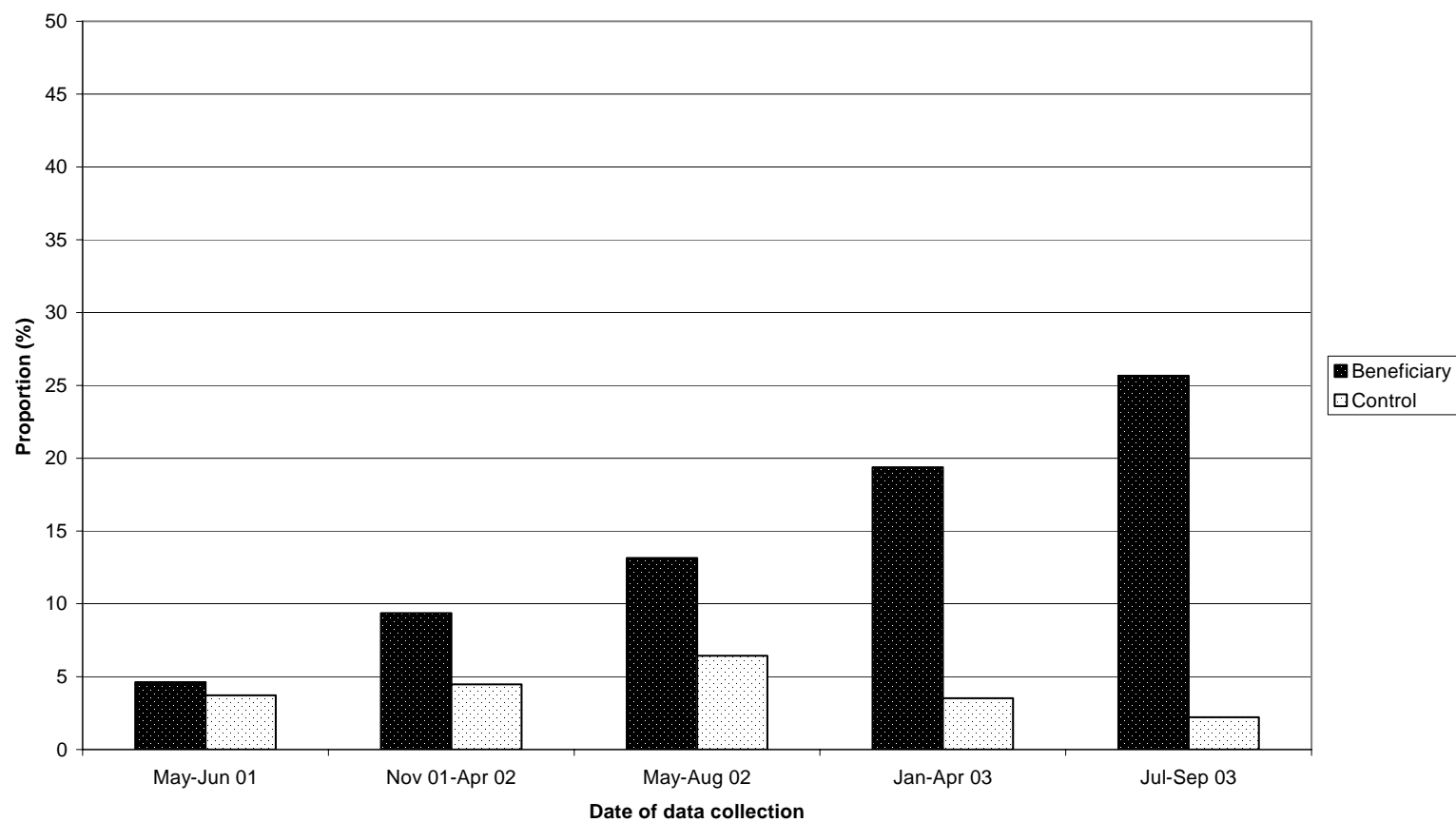
**Figure 44. CRS: Closed latrine access**



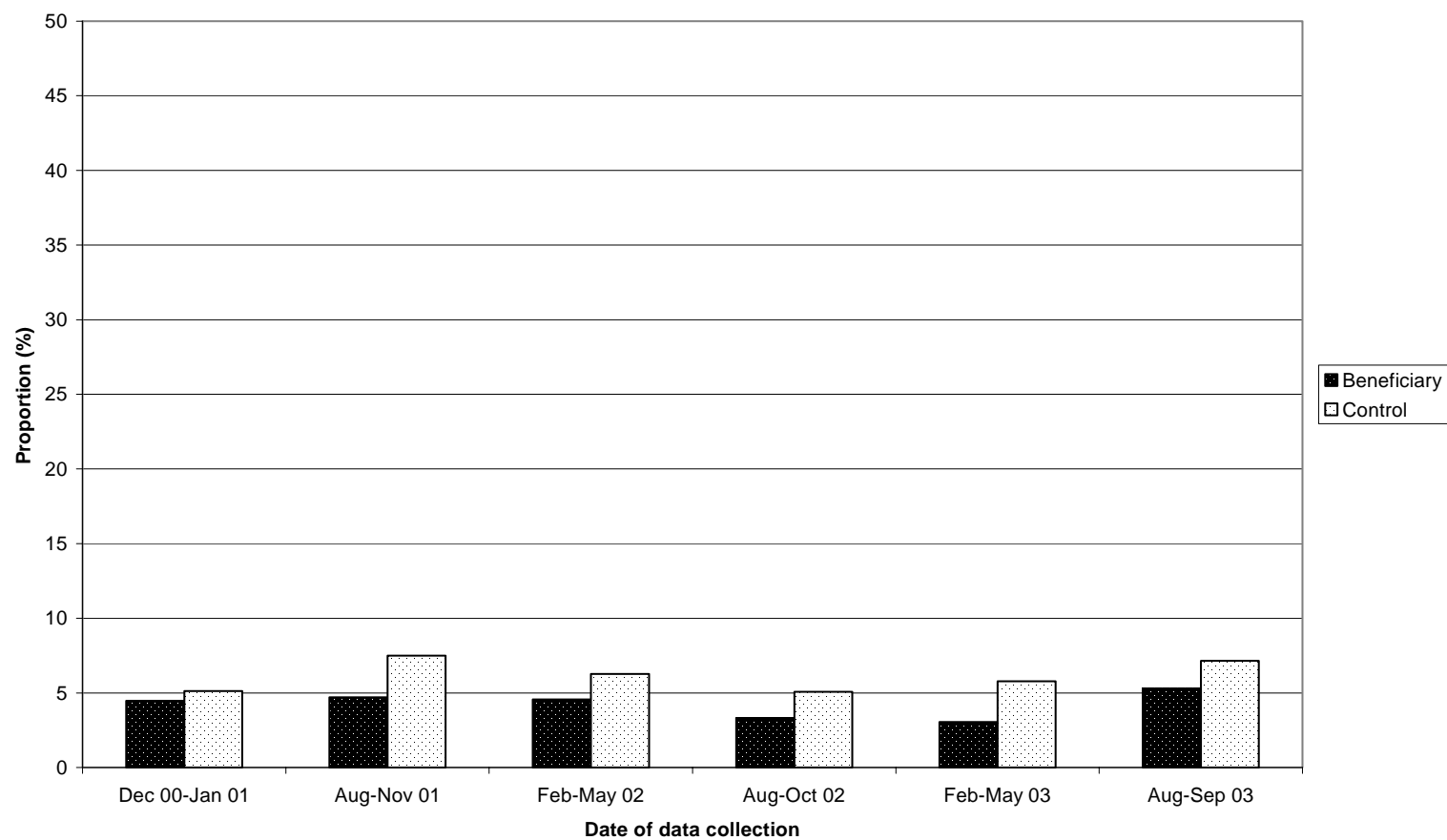
**Figure 45. CARE: Closed latrine access**



**Figure 46. MCI: Access to home garden**

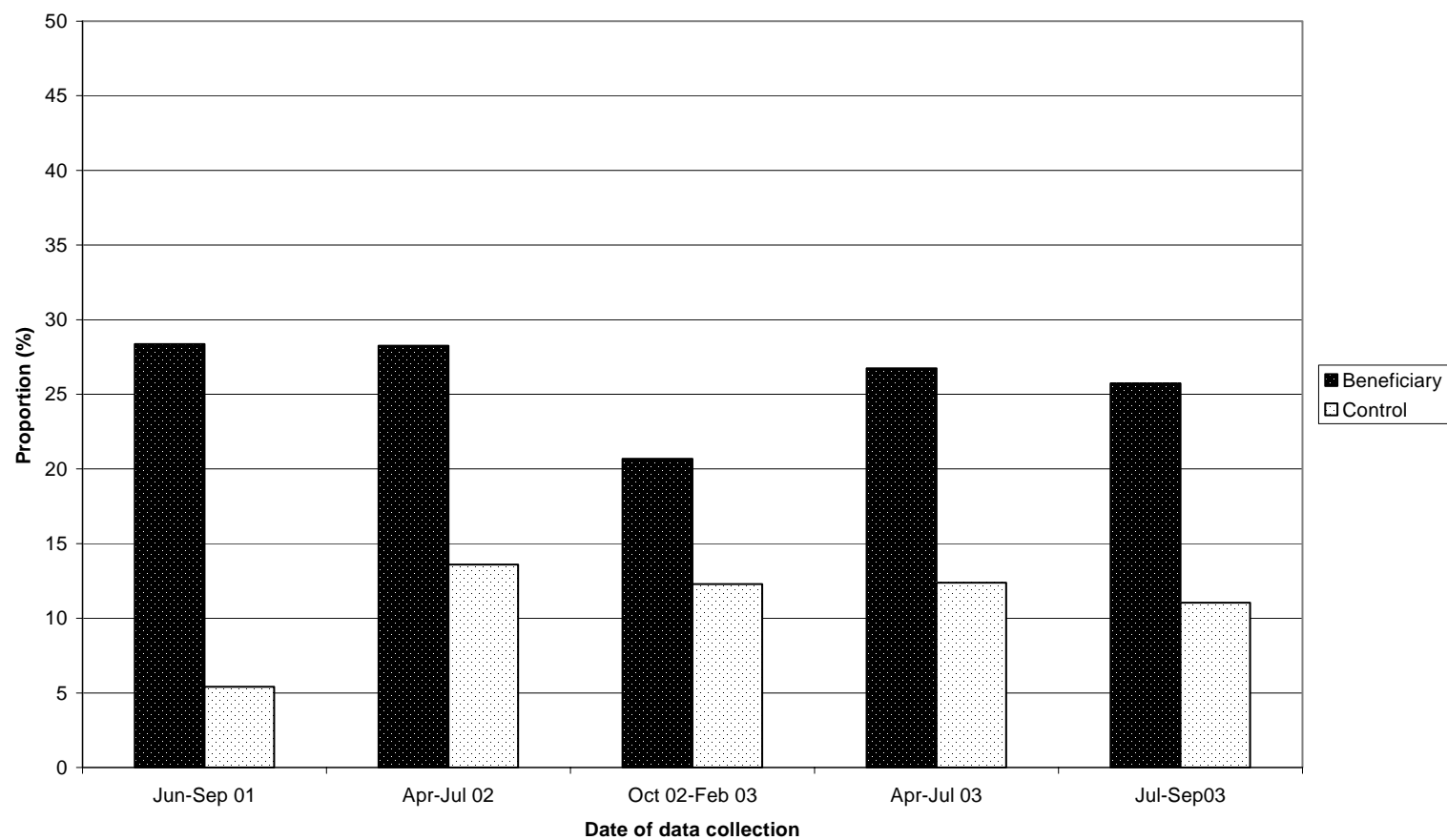


**Figure 47. WVI: Access to home garden**

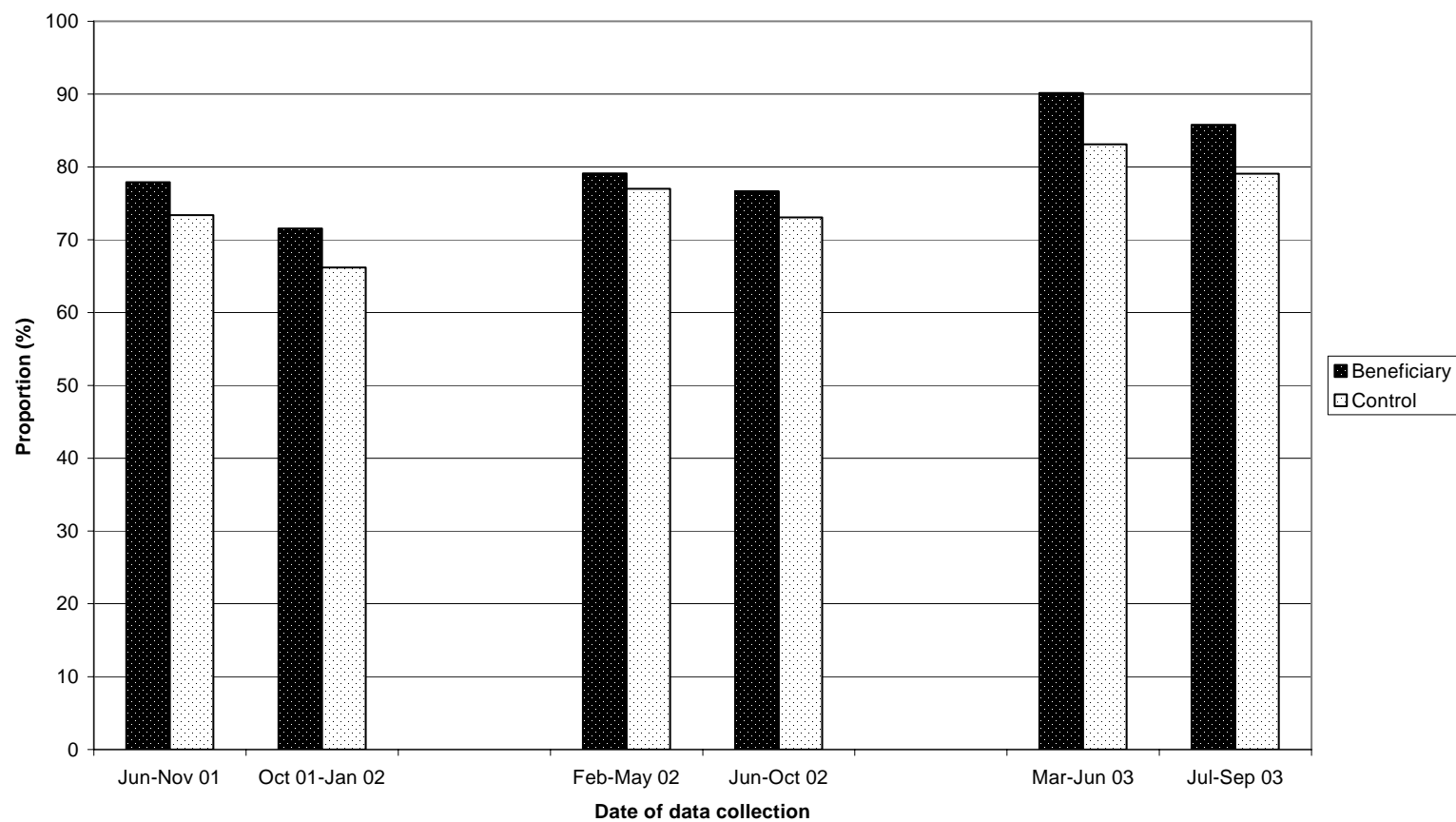




**Figure 48. CWS: Access to home garden**



**Figure 49. CRS: Access to home garden**



**Figure 50. CARE: Access to home garden**

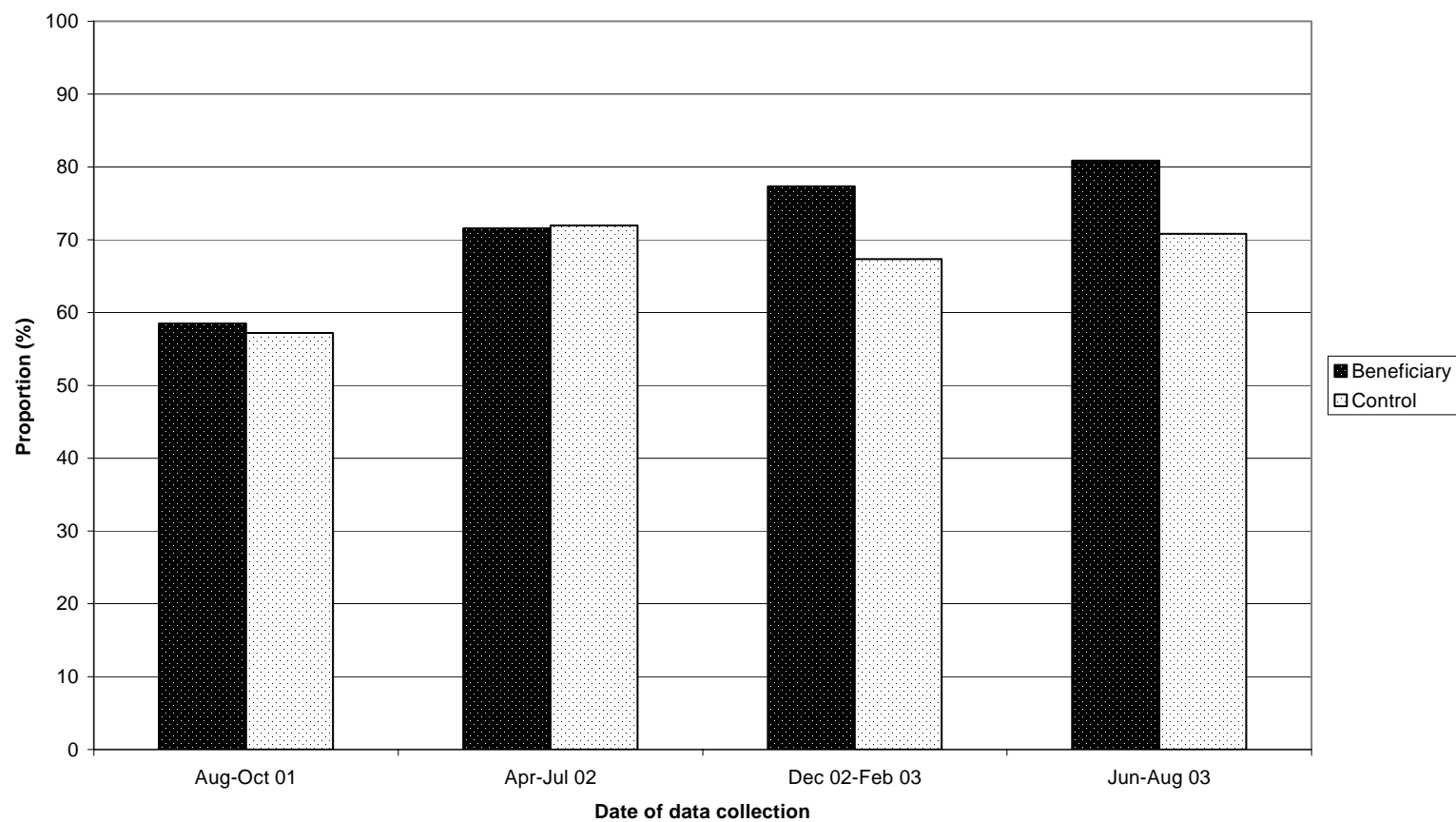


Figure 51. MCI: Source of drinking water

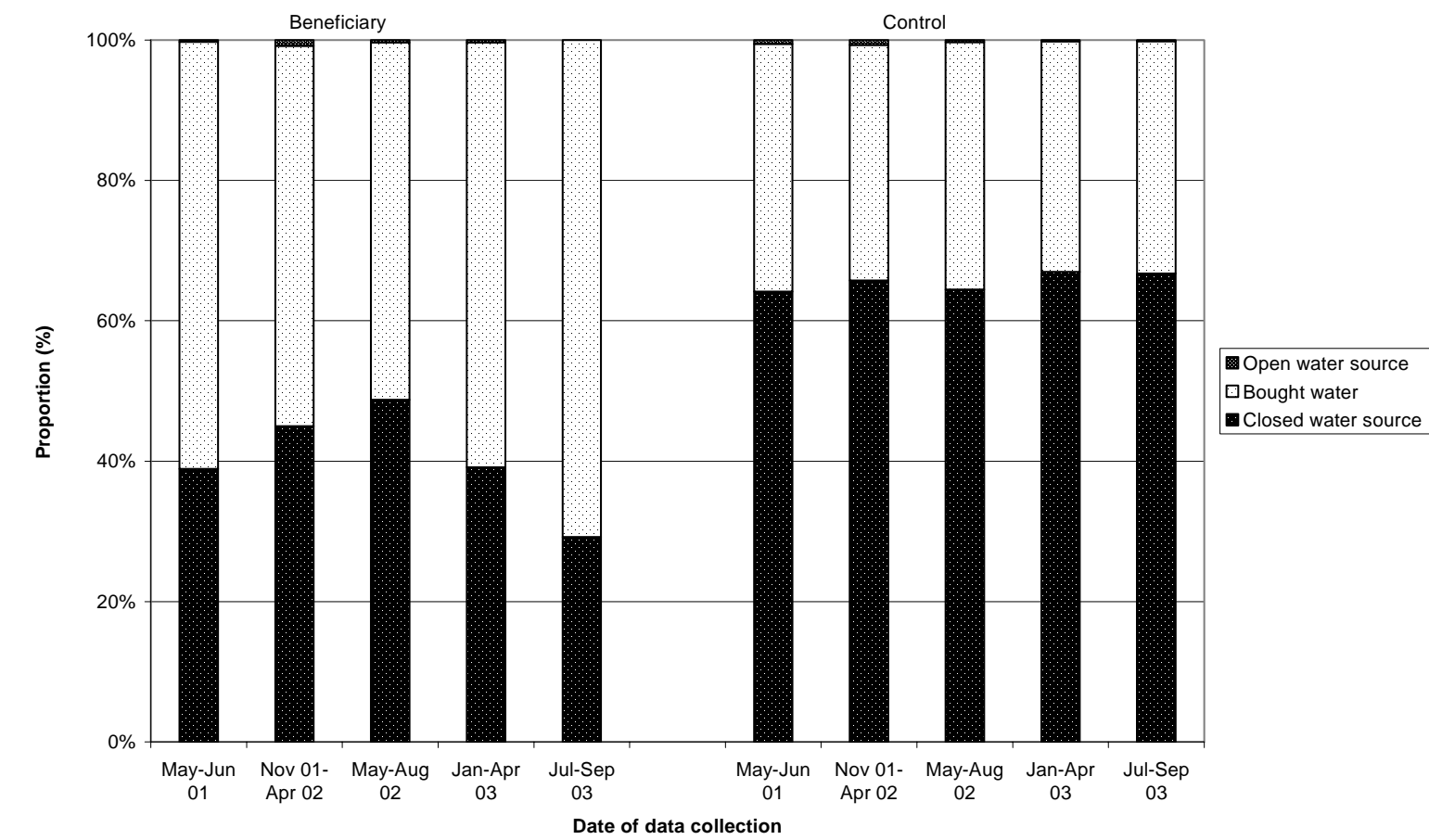


Figure 52. WVI: Source of drinking water

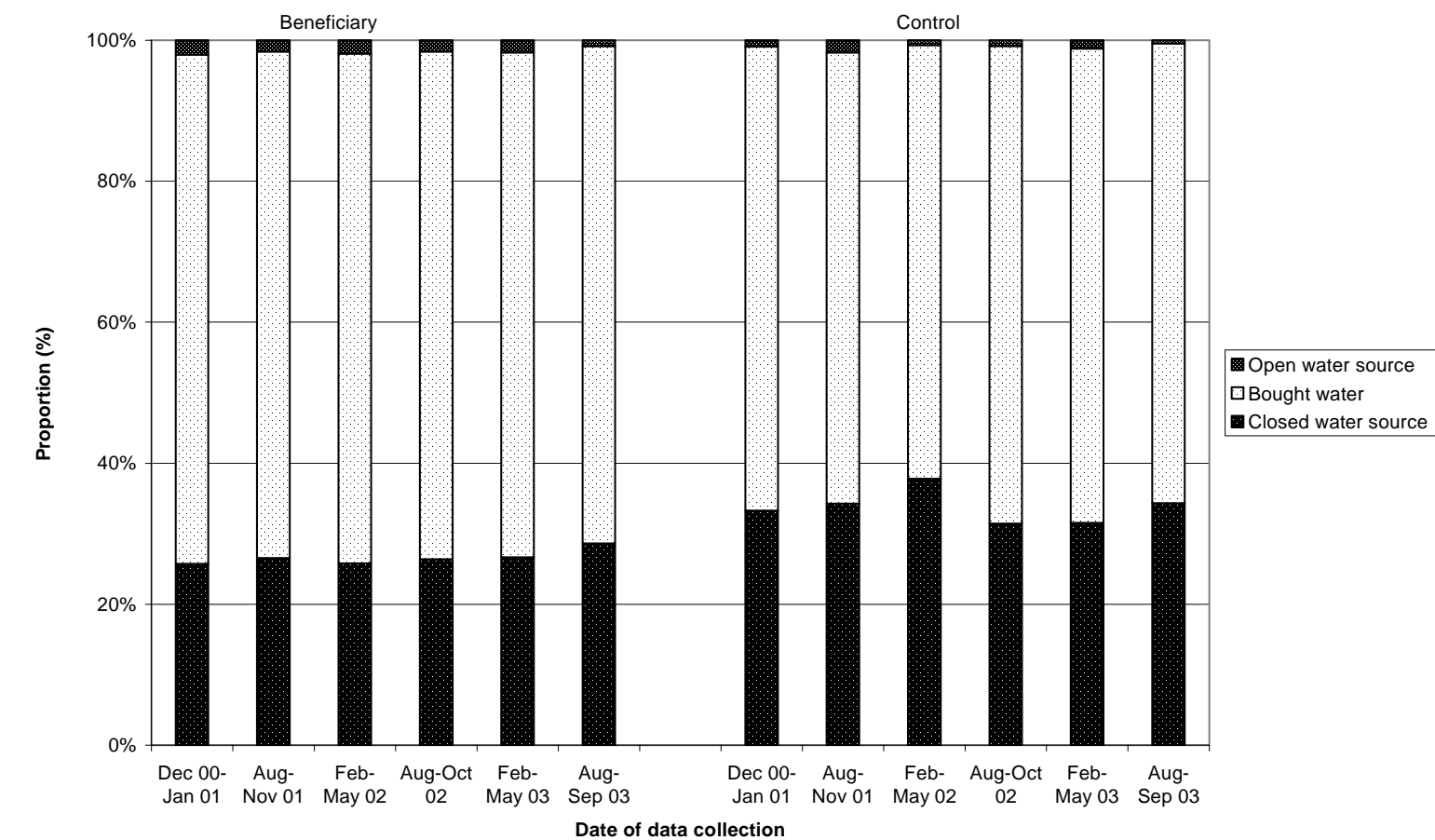


Figure 53. CWS: Source of drinking water

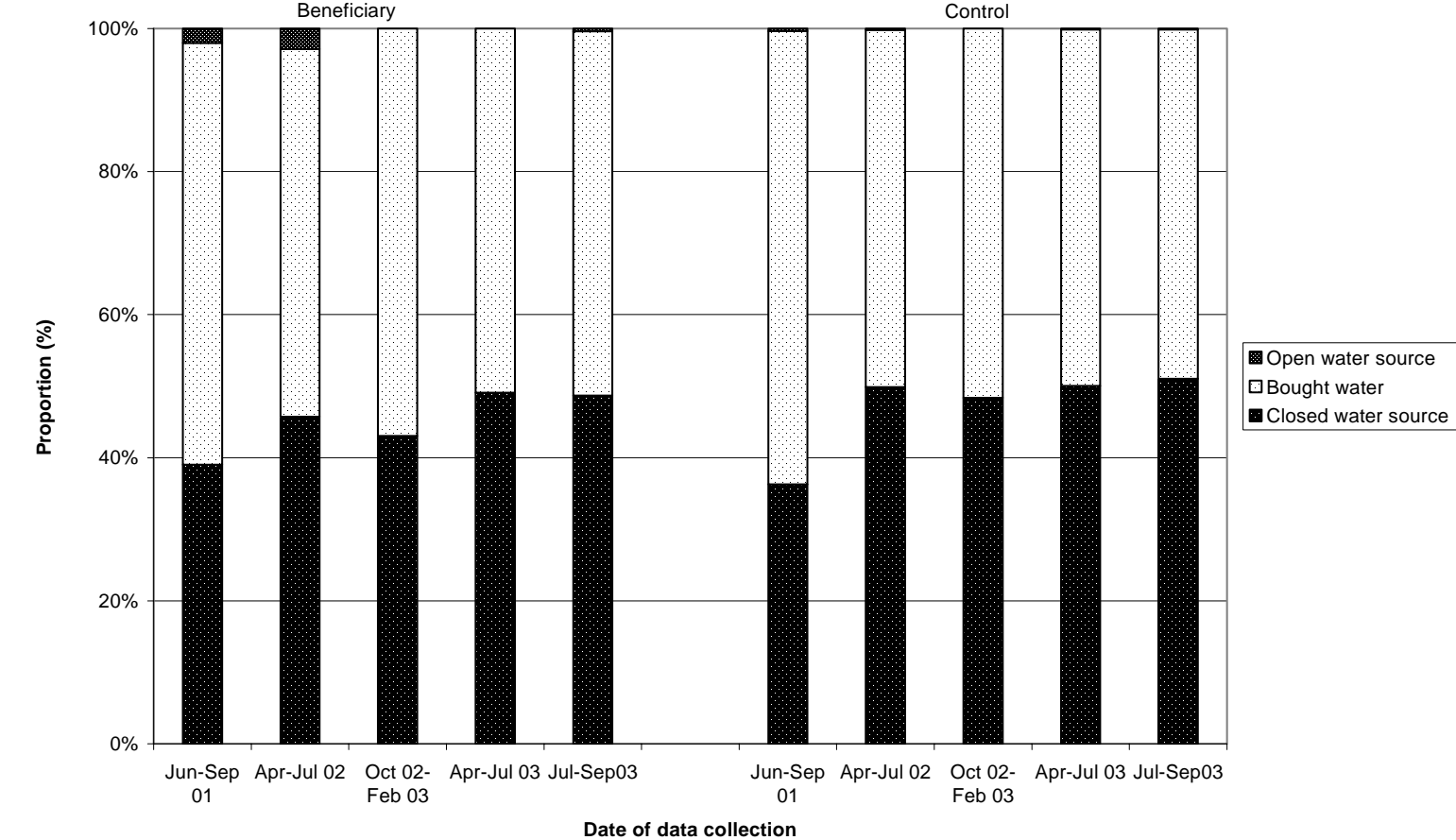


Figure 54. CRS: Source of drinking water

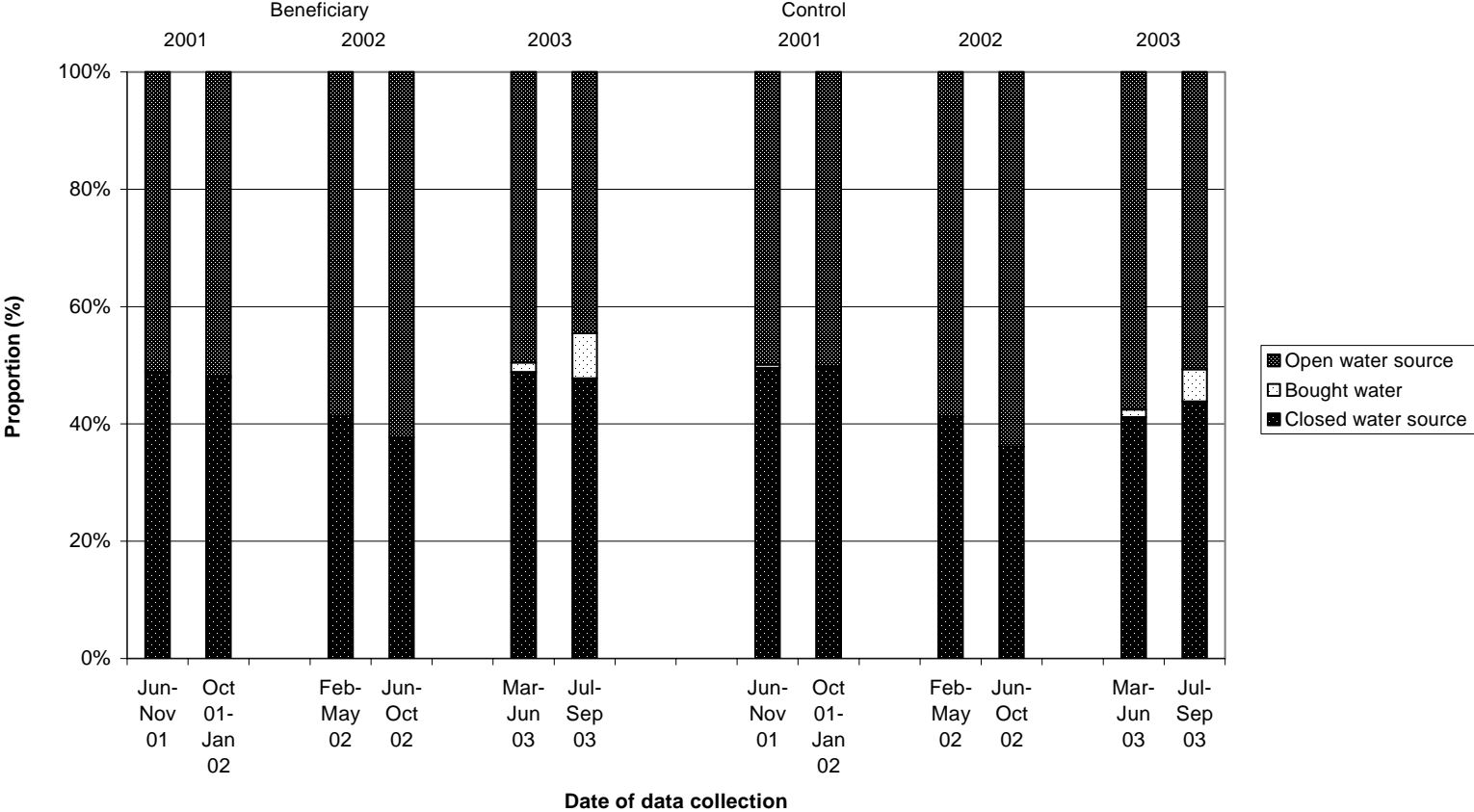
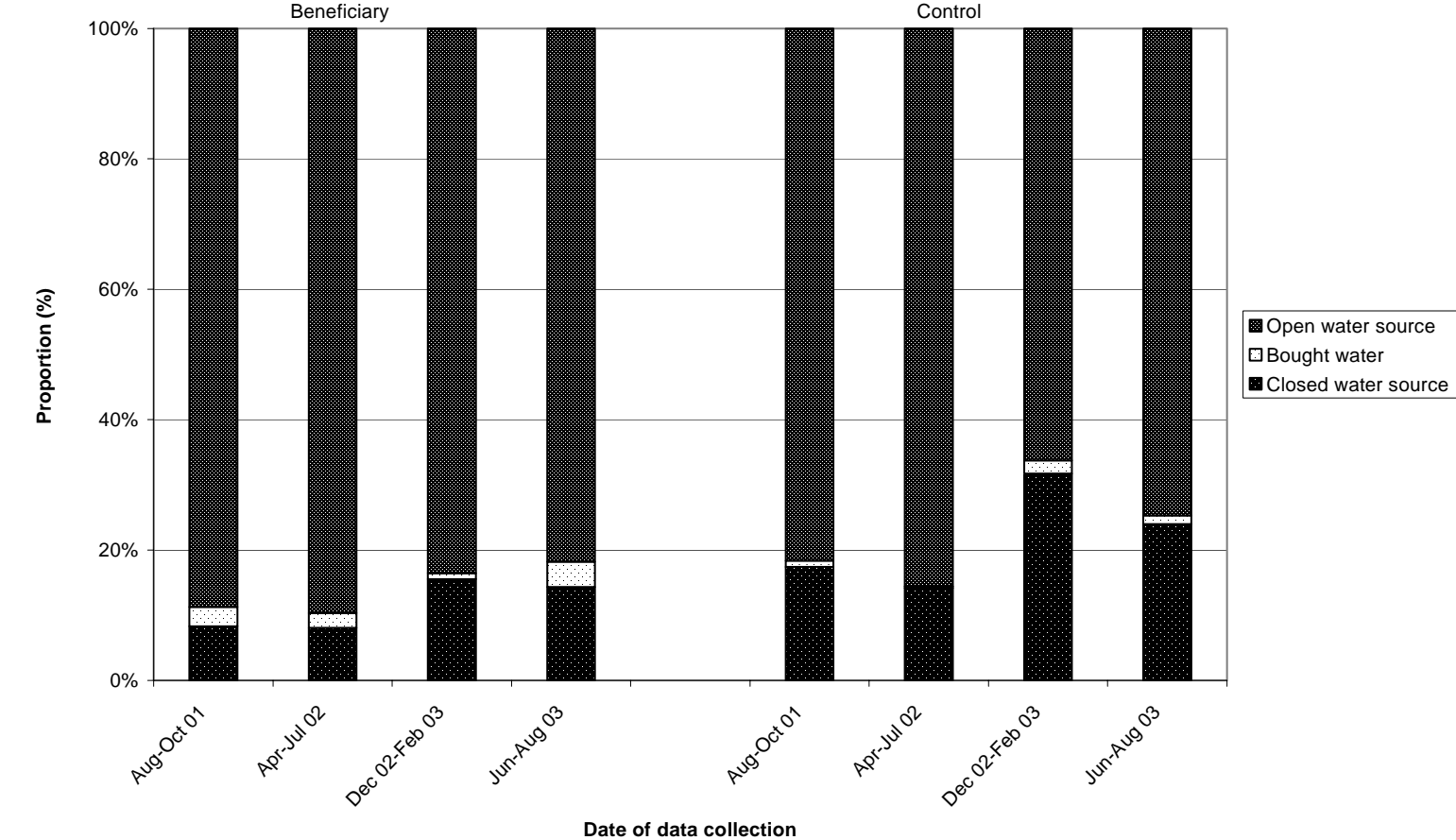
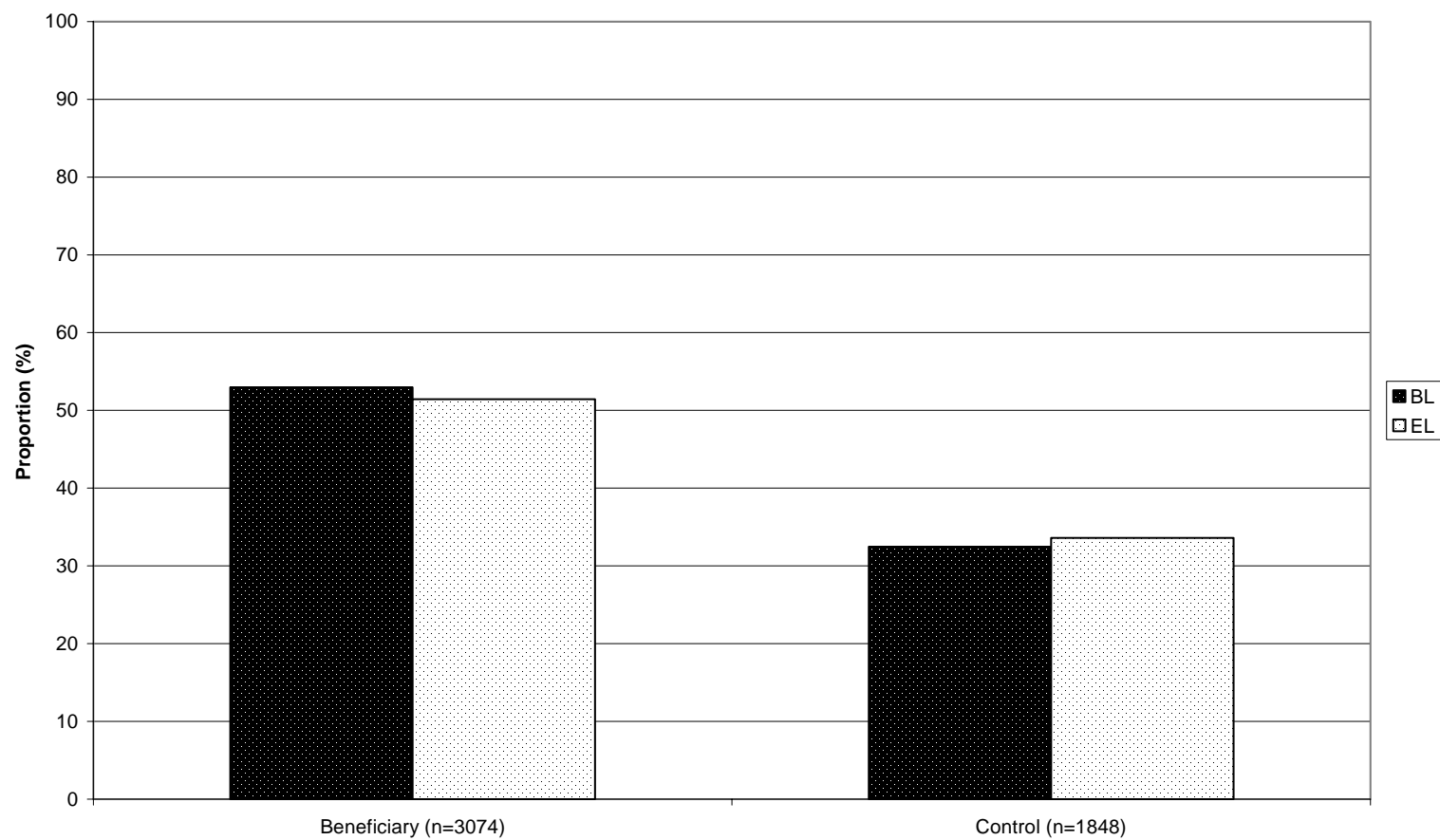


Figure 55: CARE: Source of drinking water





**Figure 56. MCI: Household debt in the previous month**



**Figure 57. WVI: Household debt in the previous month**

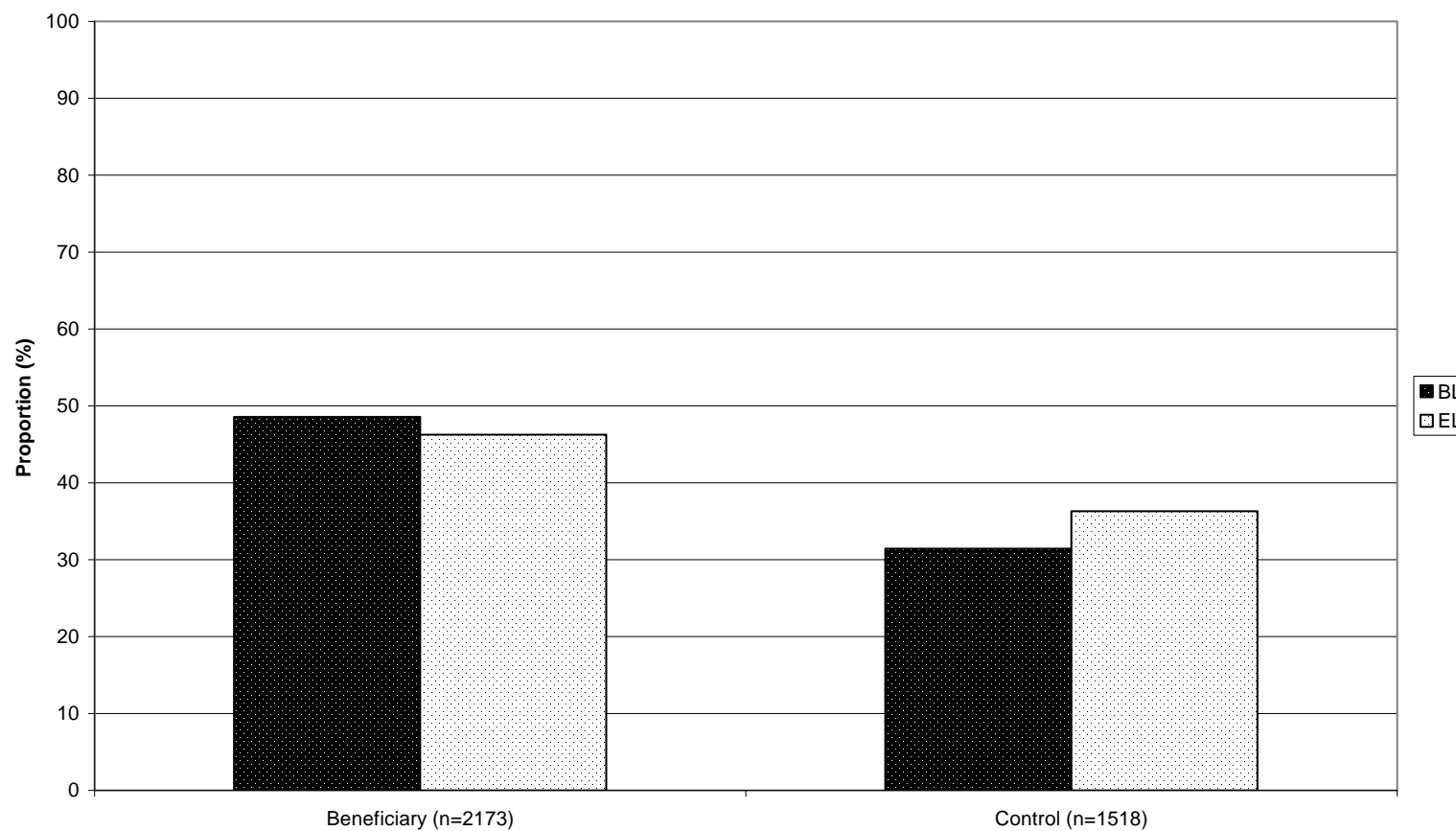
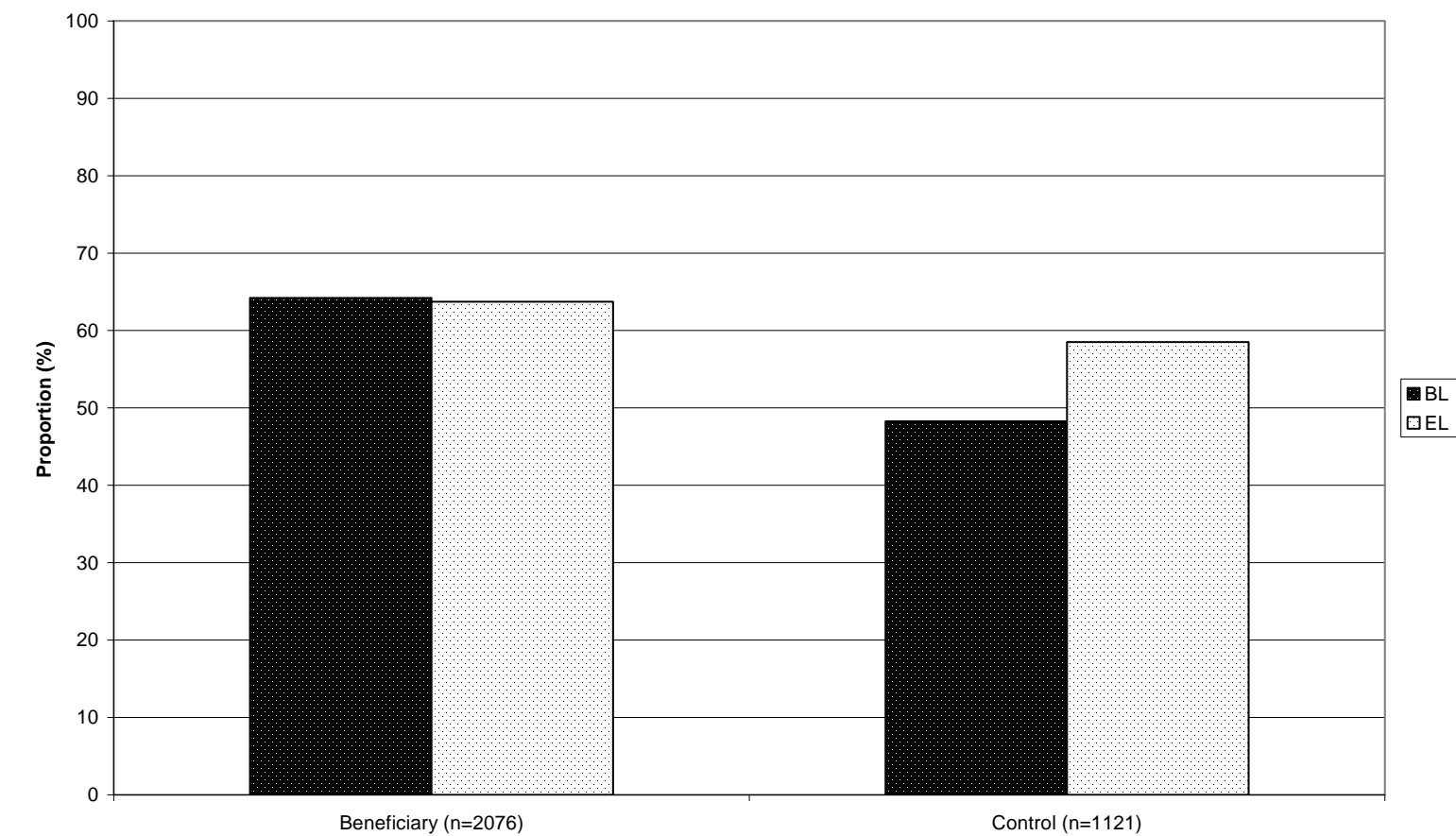
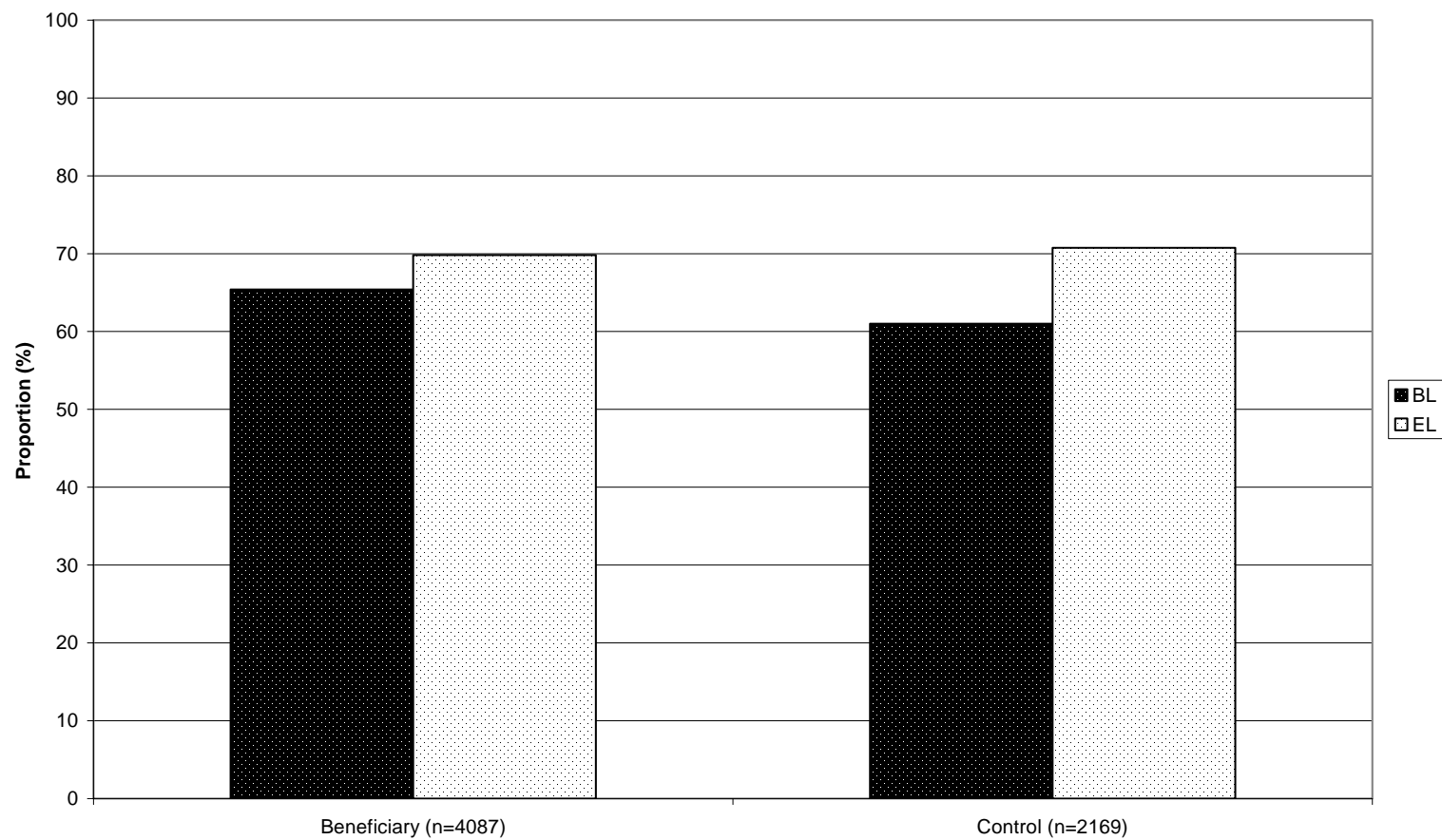


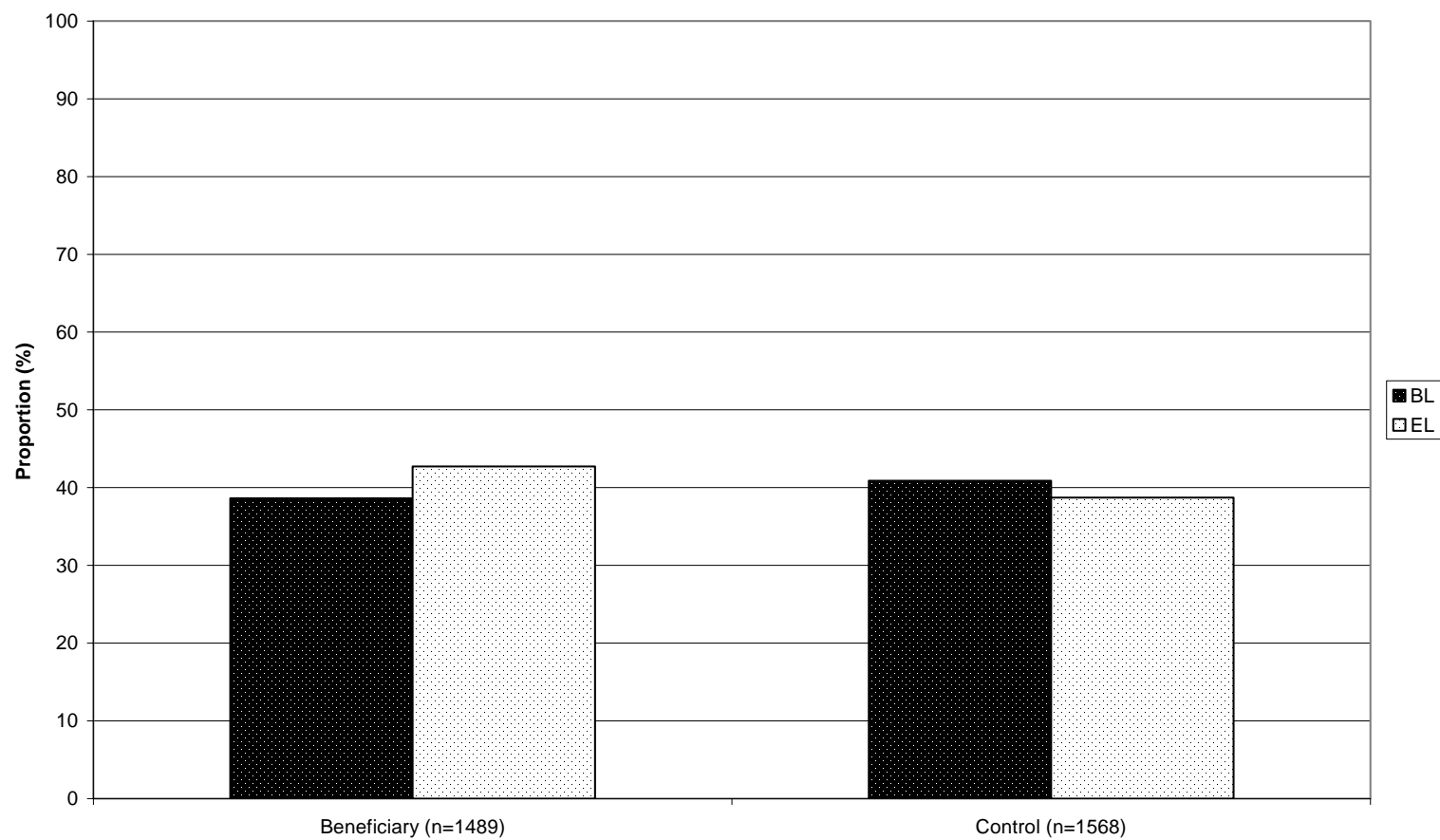
Figure 58. CWS: Household debt in the previous month



**Figure 59. CRS: Household debt in the previous month**



**Figure 60. CARE: Household debt in the previous month**



**Figure 61. Consumption of FFW benefit at last round (EL)**

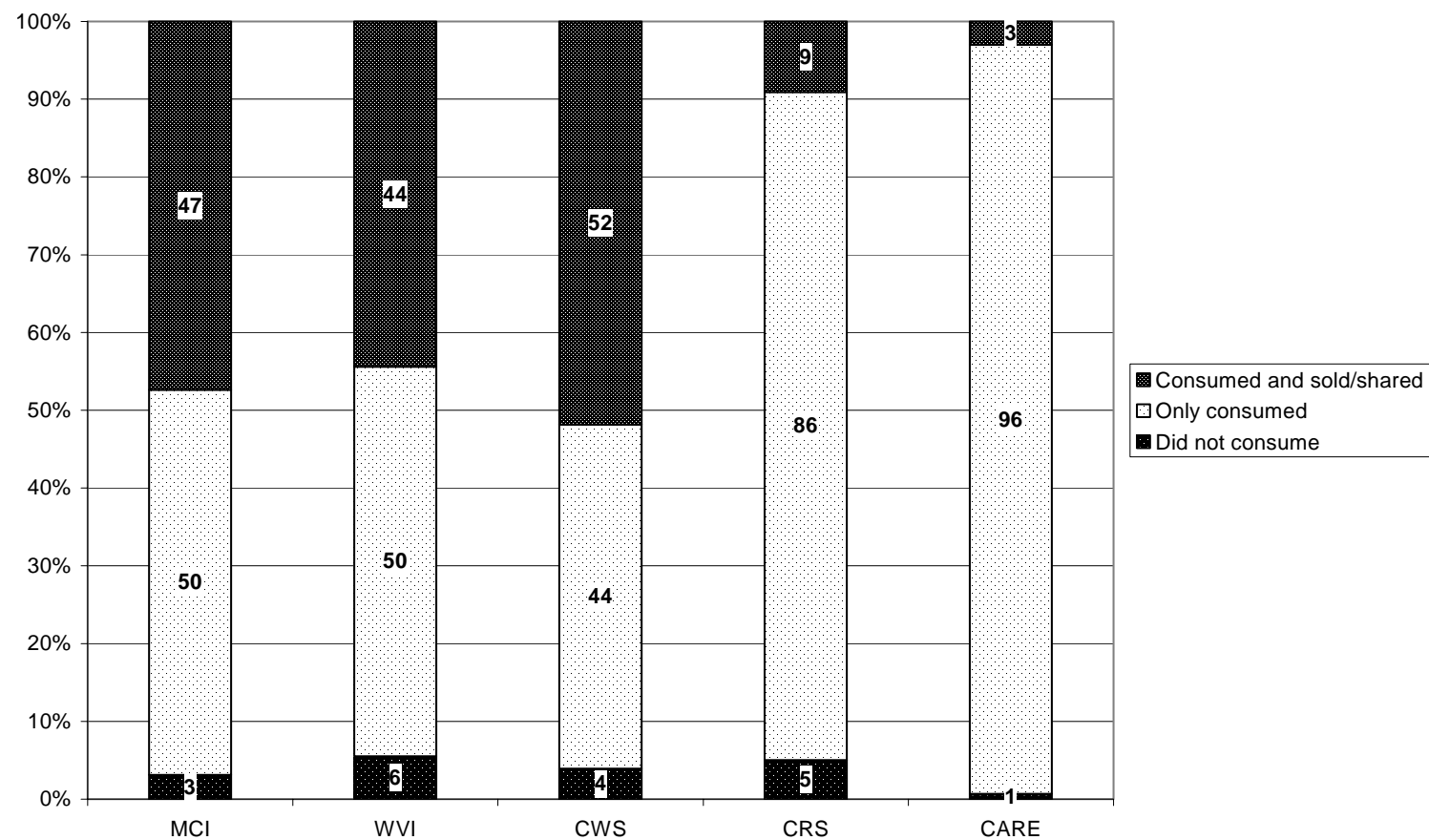


Figure 62. Sharing of FFW benefit at last round (EL)

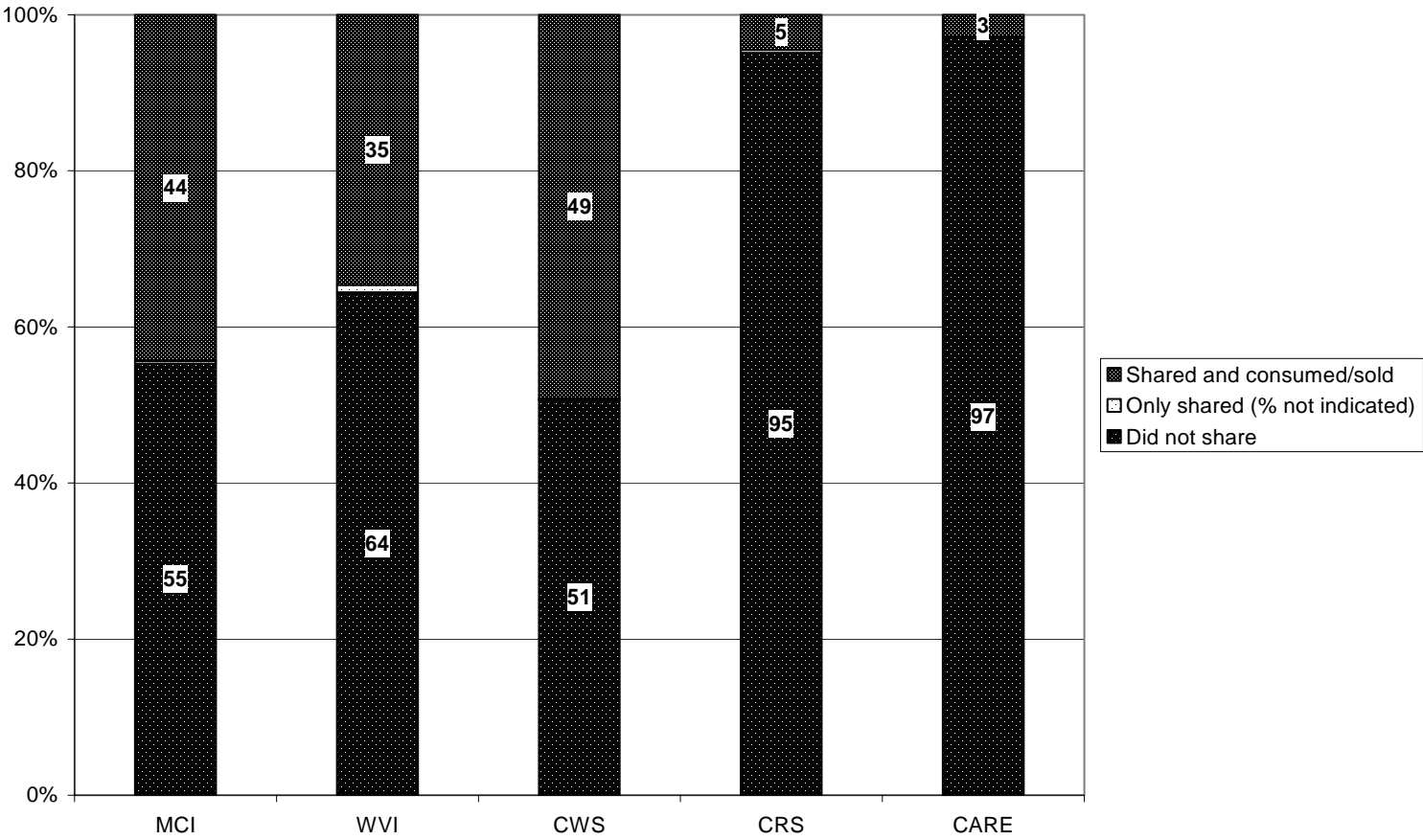


Figure 63. Sale of FFW benefit at last round (EL)

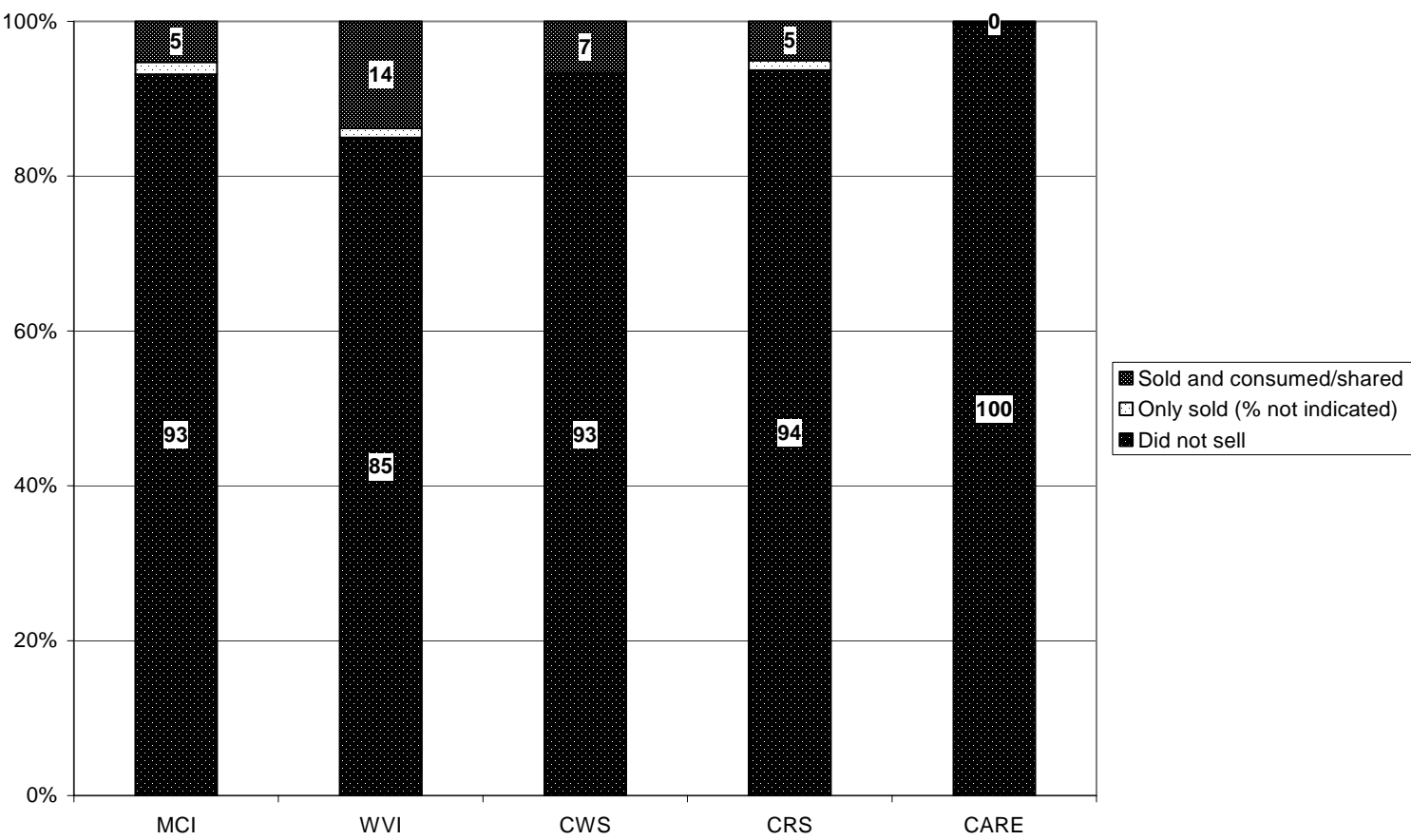




Figure 64. Median proportion of expenditure on food in the previous week

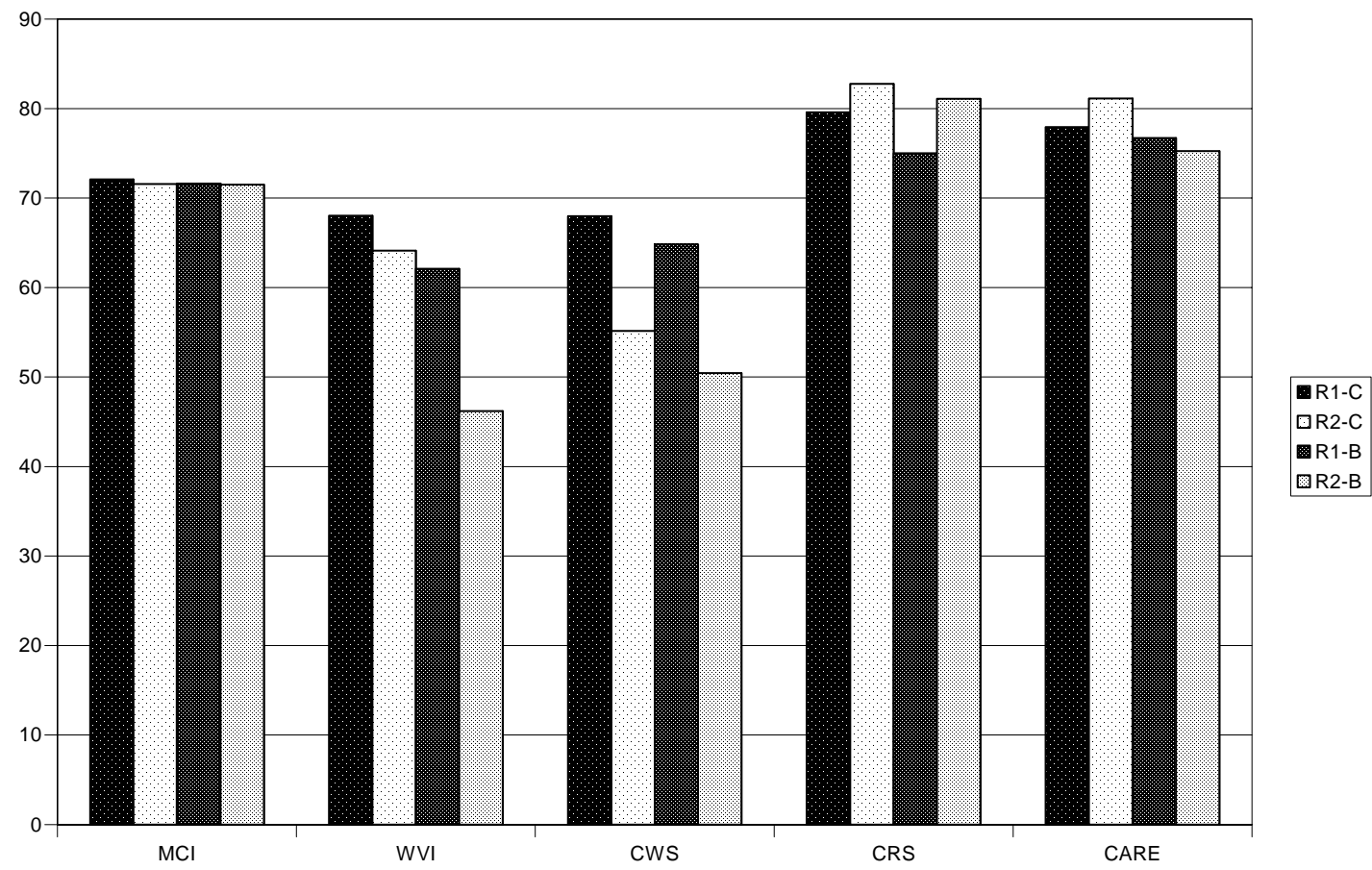


Figure 65. Median proportion of expenditure on rice in the previous week

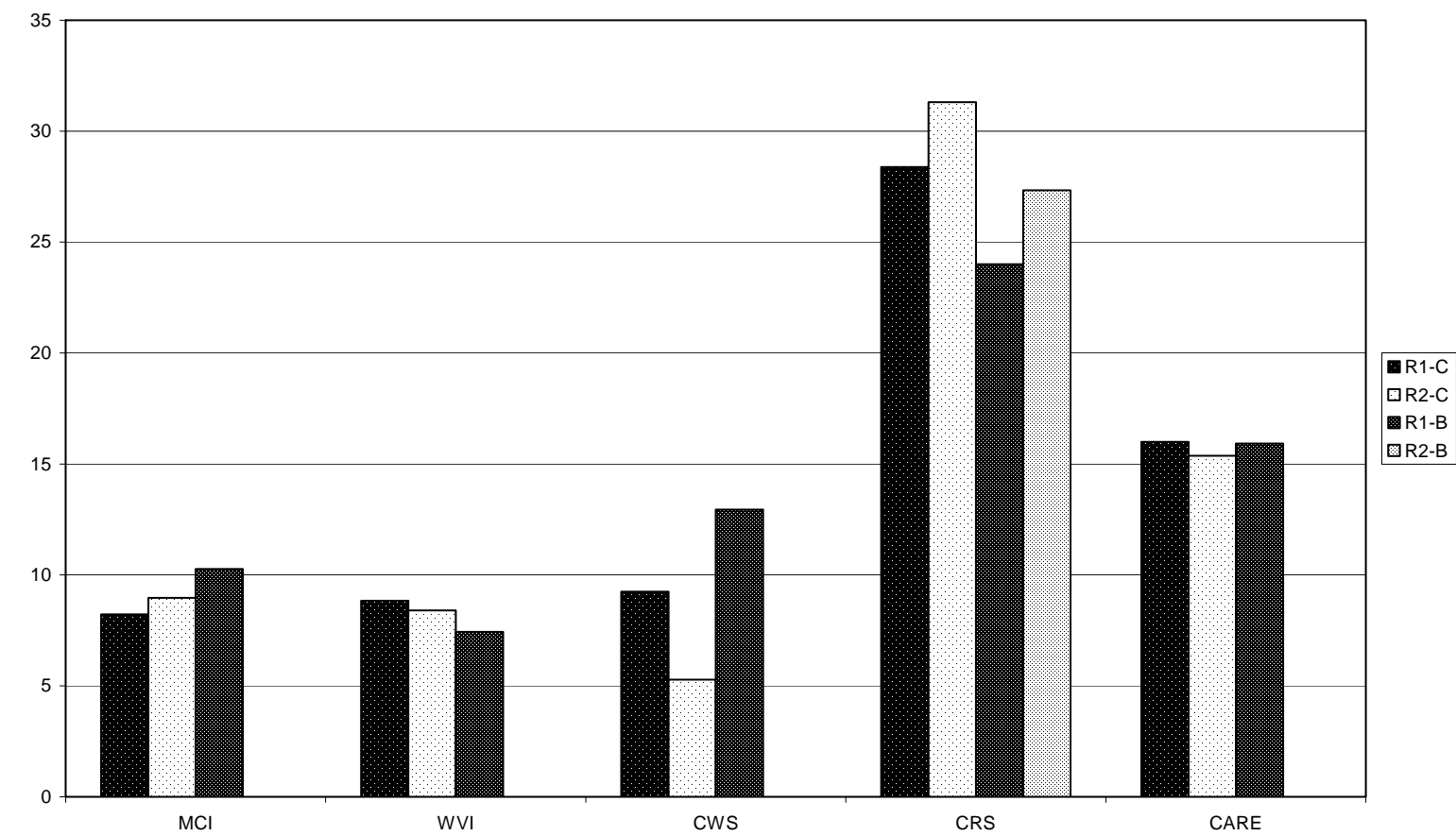


Figure 66. Median proportion of expenditure on animal foods in the previous week

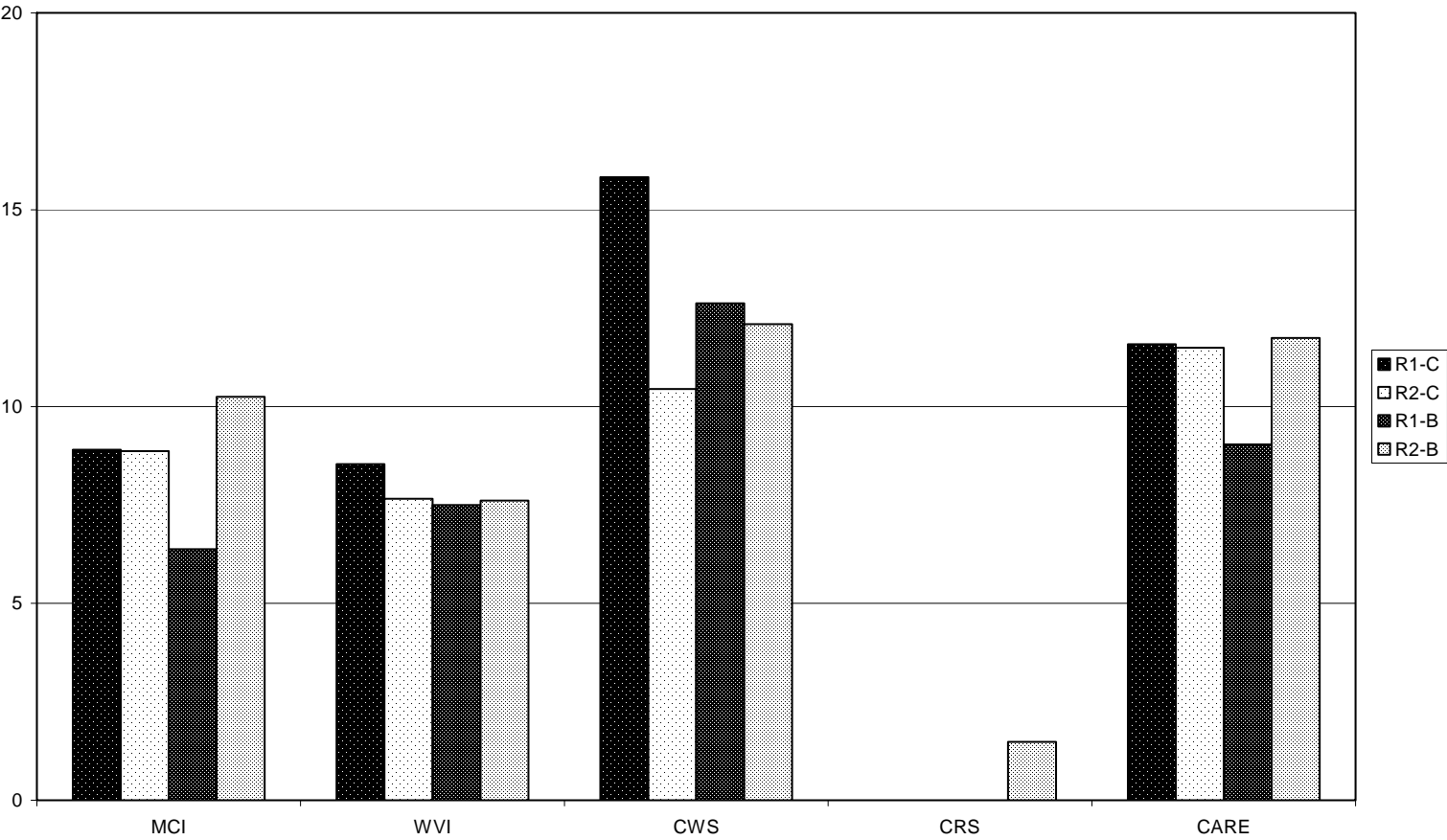


Figure 67. Median proportion of expenditure on plant foods in the previous week

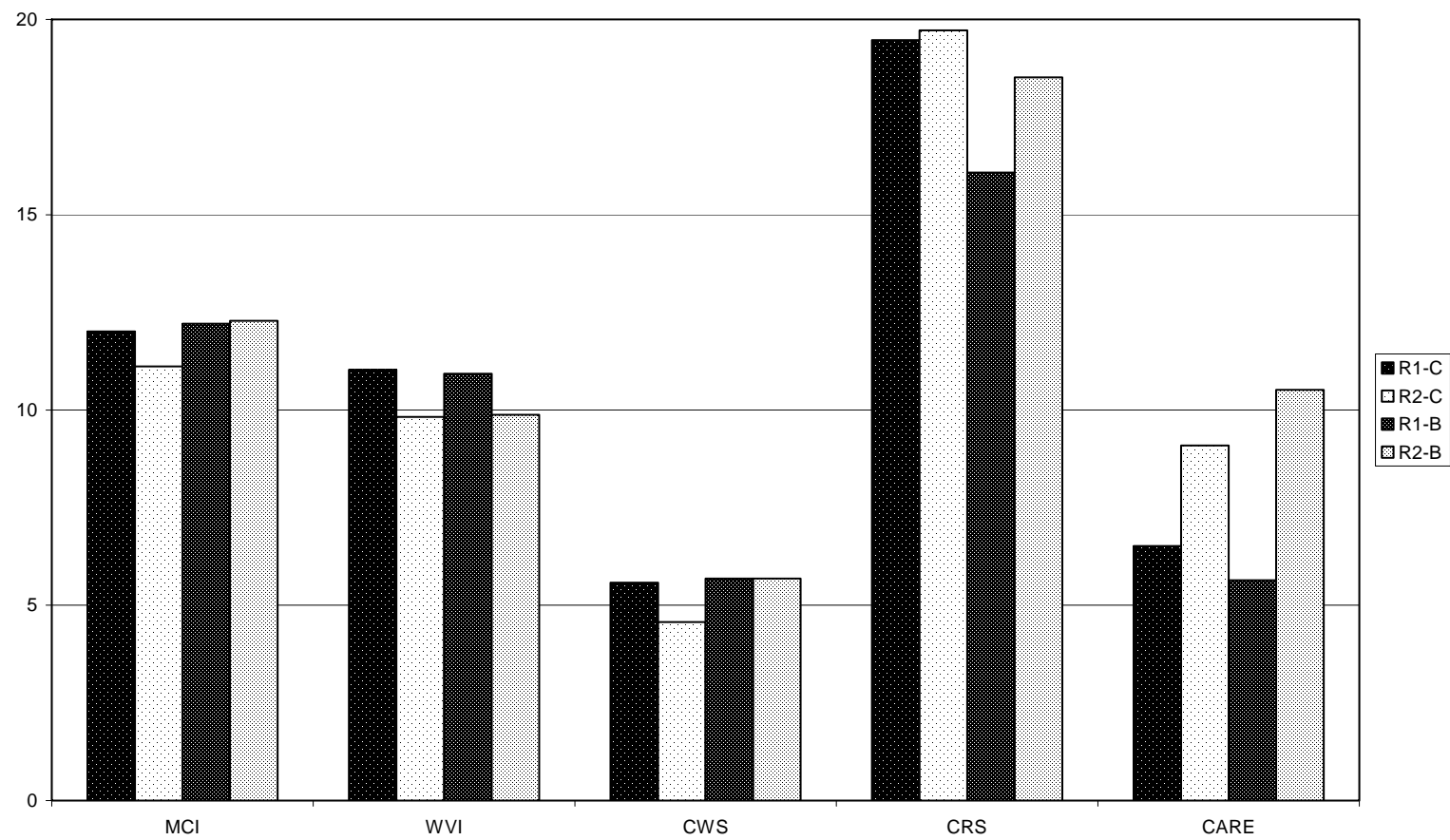


Figure 68. Median proportion of expenditure on sugar and oil in the previous week

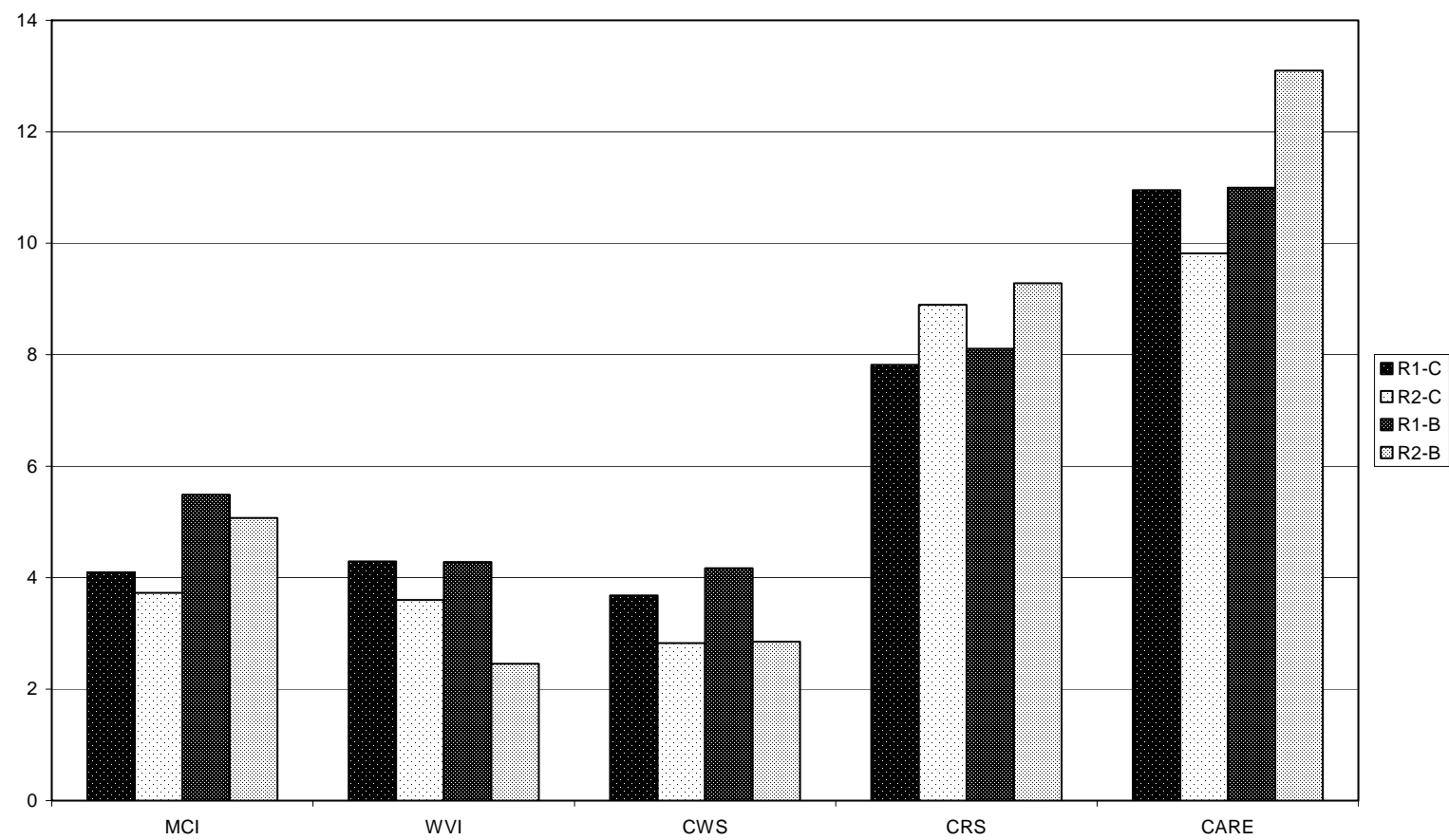
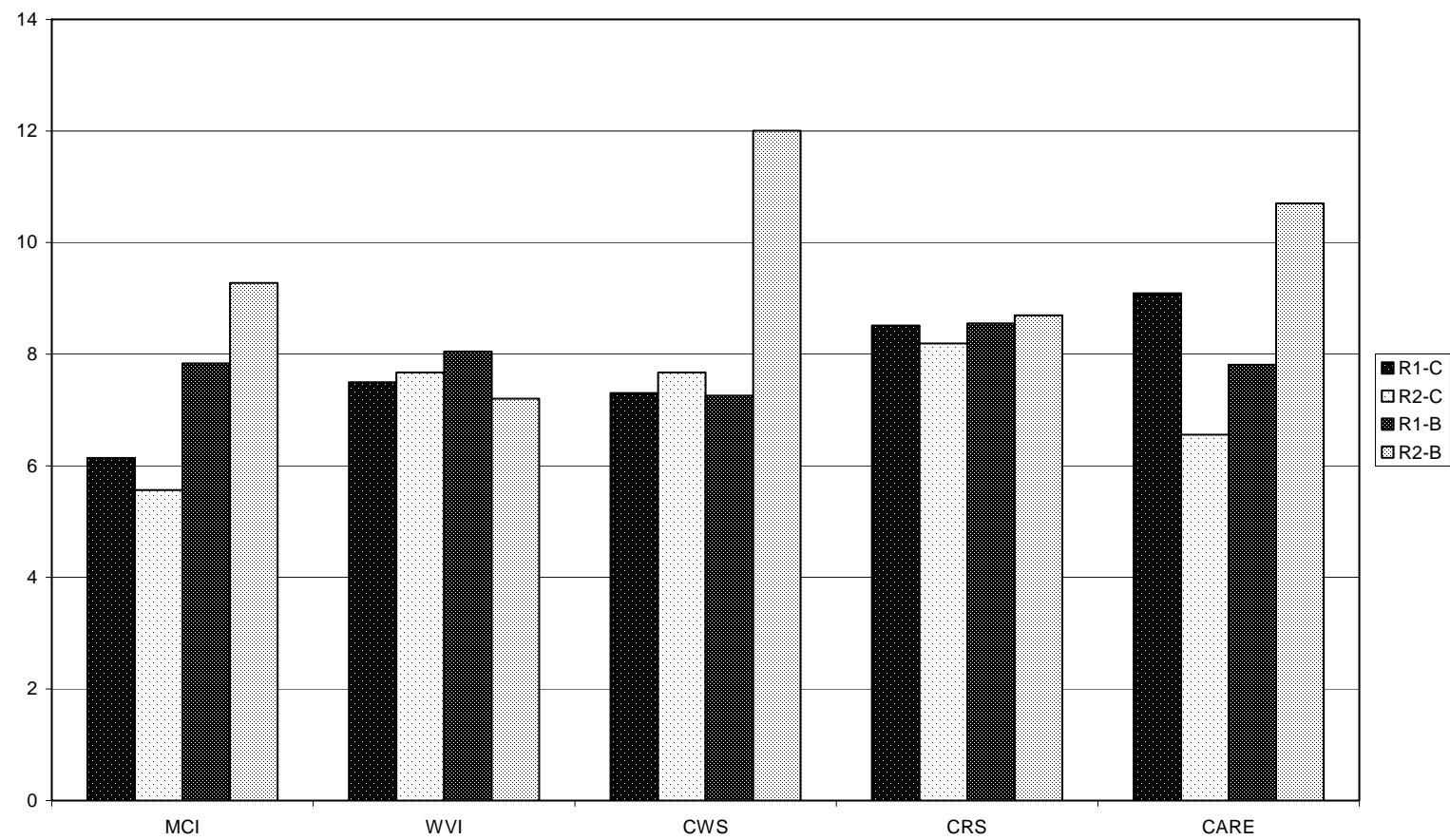


Figure 69. Median proportion of expenditure on clothes, house, other in the previous week



## **5. Considerations for TAP FFW program implementation**

The FAM activity had as its specific objective to evaluate the impact of the TAP/FFP initiative on nutritional and health status of program beneficiaries participating in the FFW programs implemented by the TAP implementing NGOs. The consortium of TAP NGOs consisted of 5 different NGOs with each NGO having its own characteristics in regard to their FFW program implementation.

In order to understand the findings of the FAM activity it is important to highlight the key considerations for the different TAP FFW programs in regard to actual implementation time, type of FFW program and type of food assistance given since these key characteristics can influence the impact of the FFW programs on their beneficiaries. Even though these characteristics are linked with each other, they will be for simplicity of this report, shortly discussed in three separate sections below.

### **5.1. Implementation time of TAP FFW programs**

The time the FFW program is implemented in one site is important since a minimum of implementation time is required to allow for impact particularly if the FFW program has a nutritional objective as one of its goals. It is known for example that for monitoring impacts on child anemia, an implementation time of 4-6 months for programs that are particularly implemented for reducing childhood anemia, such as supplementation, is recommended. A longer implementation time would be required for FFW programs which are not particularly implemented to reduce childhood anemia because the extra iron that the children might receive through a diet of improved quality is much less than in the case of supplementation or targeted food fortification and a longer implementation time would then be needed before an impact, if any, could be detected.

The average (median) duration of household participation in FFW ranged from 4 to 18 months, with the longest average implementation time in Surabaya (WVI, 18 months) and East Kalimantan (CARE, 18 months). Average implementation time in Jakarta (MCI) and Makassar (CWS) was 7 months, and in Central Java/Yogyakarta (CRS) the average FFW implementation time was 4 months. One challenge for NGOs implementing FFW is the community level demand that all eligible households have a chance to participate. This factor contributed to the length of time that households and communities participated in the FFW programs. Furthermore, two of the TAP NGOs (CWS and CRS) implemented FFW programs in conjunction with local NGOs, which further complicated implementation schedules. In terms of the FAM activity, wide variations in implementation schedules between and within sites presented a large challenge for attempts to interview beneficiaries immediately prior to their joining and concurrent with their departure from the FFW programs. In many cases, the TAP NGOs were only able to provide a list of FFW participants immediately prior to the beginning of the program, therefore the FAM baseline could only be conducted once households had already joined the program for 1-2 months. While we would not expect large nutritional impacts in the first 2 months of a FFW program, other important indicators (such as expenditure) were immediately affected by receipt of the FFW benefit, and therefore those households had to be excluded for the purpose of that analysis.

### **5.2. Types of TAP FFW programs**

The type of FFW program is important to consider if a nutritional impact is expected. Heavy physical work will lead to higher energy consumption by the beneficiaries and if not considered with the accompanying food assistance given, this could lead to reduced body

weights within the beneficiaries. However, from a close look at the data, it appears that this did not occur in the TAP FFW programs. The opposite situation in which beneficiaries might develop obesity due to excessive caloric intake and little physical work might be less likely to occur but with the emerging phenomena of the ‘double burden of malnutrition’ (both undernutrition, including micronutrient deficiencies, as well as overnutrition, obesity and its associated chronic diseases, occurring in the same population) this situation is worthwhile to mention.

In addition, FFW programs that have as their main objective the improvement of environmental characteristics such as improving sewage systems, improving access to water, etc. might have an indirect positive impact on the health and nutritional situation of the FFW program beneficiaries due to reduced disease incidences (i.e. less episodes of diarrhea, etc.).

The majority of TAP FFW activities in urban areas related to building or renovating community infrastructure (latrines, wells, pathways, drainage, solid waste management, renovating *posyandu* or school buildings, etc.). These, as well as the activities conducted in rural areas (farming and fisheries, water/sanitation programs, and road building) require a substantial level of physical activity. In urban communities, less physically demanding activities were also implemented, including skills training, nutrition and health education, or cleaning and sweeping of MCKs, pathways and drainage gutters that were already built or renovated by earlier phases of the FFW programs.

### **5.3. Type of food assistance given by the TAP FFW programs**

The type of food assistance given through FFW programs to their beneficiaries is very much linked to the objective of the FFW program and the type of FFW program. The types of FFW benefits distributed by each of the five TAP NGOs are listed again below:

- Jakarta (MCI)- 50kg rice per month
- Surabaya (WVI)- 44kg rice, 4 liters oil, and 6kg pinto beans per month
- Makassar (CWS)- 50kg rice, and 4 liters oil per month
- Central Java and Yogyakarta (CRS)- 50kg rice per month
- East Kalimantan (CARE)- 50kg rice per month

As discussed earlier, heavy physical work needs to be corrected for by providing sufficient food assistance in regard to caloric quantity but at the same time, the nutritional status of the beneficiaries at the beginning of the program needs to be considered as well. High prevalences of anemia, for example, need to be considered and appropriate food assistance, including the micronutrients (such as iron) that can address the anemia problem, would need to be provided.

## **6. Conclusions**

The main objective of the FAM activity was to monitor and evaluate the impact of FFW programs on the nutritional status of its beneficiaries. This was done in collaboration with the implementing NGO partners of the Transitional Activity Program (TAP), USAID Bureau for Democracy, Conflict and Humanitarian Response/Office of Food for Peace. The time frame for the FAM activity spanned three years (2000-2003), and FAM activities were implemented in coordination with the FFW program implementation schedule of each of the five NGOs participating in the TAP/FFP initiative.

The conclusions can be summarized as follows:

1. The FAM activity has been instrumental to provide more insight into the understanding of benefits and impacts of FFW programs on their beneficiaries and



consequent environment in which the FFW programs were implemented in Indonesia. FFW programs are widely considered as valuable contributions to the development of communities, as well as to the improvement of the nutritional status of those who directly participate in the FFW programs. The initiative taken by the FFP office to monitor and evaluate the impact of the TAP/FFP initiative on nutritional and health status of program beneficiaries was a major step towards increasing the knowledge of the real benefits of FFW programs. The HKI/FAM activity emerged as one of the few activities in the field of FFW programs that specifically looked into the direct benefits of FFW program beneficiaries in regard to improved anthropometry (body weight and height) and micronutrient status (hemoglobin concentration).

2. Due to a) the different implementation schedules and program durations in each NGO site, b) the different type of FFW programs ranging from rehabilitation of community infrastructure to skills training, and c) the different food assistance (food basket) given to the beneficiaries, an analysis that looked at all impacts of the TAP/FFP initiative together as if it was one program has not been possible. However, each NGO has been respectively followed from the start of program implementation until the end of the FAM activity, ranging from 3 months program implementation in one NGO site, to 2 yrs of program implementation in another site. Consequently, the impacts of FFW programs on the nutritional status of beneficiaries were examined in the context of the different implementation schedules, types of programs, and food assistance.
3. The findings presented in chapter 4 of this report showed that the implementing NGOs targeted their activities to the poor both in urban as well as rural areas. Overall, beneficiary women had less formal education (21% vs. 12%) and reported lower incomes than controls. Levels of child underweight and stunting were higher among beneficiaries than controls, and levels of child wasting and anemia were comparable between the groups. However, beneficiary women had higher BMIs than control women at the start of the FFW program, which may in fact be related to a poorer nutritional status (see below).
4. The most direct impact on nutritional status would have come from the FFW benefit distributed to the beneficiaries, which was rice in all sites, oil and/or beans in some sites, and partial overlap of WSB distribution for young children in some sites. The data showed that the additional food provided, including the WSB, had no impact on energy intake. This is supported by the observation that 35-50% of urban households shared some of the rice and that there appears to have been underreporting of selling of the rice. The field coordinator from Central Java/Yogyakarta reported the following 'Some beneficiaries told me that the quality of the FFW rice was not good to consume (*kotor, pera*) so they sold the rice and bought the good one even though the price was higher. They also mixed the FFW rice and their own rice (self produced or bought) to have a 'tasty' rice (*nasi lebih enak*).'
5. As expenditure on rice decreased among beneficiaries in four of the five sites (MCI, WVI, CRS and CARE), a larger proportion of weekly expenditure was spent on other items, including animal foods (MCI, CRS and CARE), sugar and oil (CARE), clothes/housing needs (MCI, CWS and CARE), and plant foods (CRS, CARE). However, the impact of increased expenditure for purchasing animal foods on intake was small, because no change was detected of vitamin A intake from retinol-rich foods (animal foods and fortified products) of either mothers or children. At the same time, however, vitamin A intake from retinol-rich foods among mothers increased in both groups in most sites, which indicates a recovery from the crisis. In addition to increased expenditure on certain categories, debts of beneficiary households in most sites did not increase, in contrast to those of control households.

6. With respect to morbidity, which can negatively impact nutritional status, the only change of diarrhea prevalence observed was among beneficiaries in Makassar who had slightly less diarrhea during the intervention period. This could be related to the increase of vitamin A capsule coverage that was documented by NSS in almost all urban poor and rural areas (data not shown). More than 95% of the households in the urban areas had access to a safe source of drinking water (closed source or bought). Open water sources were most common in the rural areas. Households in the urban areas also had much more access to closed latrines (40-90% vs. 10-30%). However, the prevalence of diarrhea was lower in the rural than the urban sites, which may be related to crowding and the associated less hygienic circumstances.
7. With regard to nutritional status
  - a. No impact was observed on BMI. In fact, the prevalence of overweight among controls and beneficiaries increased in 3 sites (WVI, CWS, CARE), and average BMI increased in nearly all groups and sites. This is most likely related to recovery from the economic crisis.
  - b. Among the beneficiary children, less wasting was observed as compared to control children over the course of the program, especially among young children (MCI:0-11 mo, WVI 6-11 mo, CWS 12-23 mo, CRS 0-47 mo, CARE 0-23 mo).
  - c. A positive impact was also observed on the Hb of beneficiary children aged 24-59 months in MCI and WVI sites. Among the mothers in these sites the finding was similar with an increase of anemia prevalence observed among controls, but no change among beneficiaries.
8. The impacts on wasting and anemia were not obviously related to a particular component of the FFW program, but rather to a combination of factors which could include increased expenditure on animal foods in MCI site, increased posyandu visiting in WVI site, increased access to closed latrine as well as to a home garden in MCI site, and probably an increase of intake that was too small to be detected by the 24-hr recall but nevertheless enough to make a slight difference. The fact that some of those changes were also observed in the other three sites while no impact was found on the nutritional status of the beneficiaries in those sites, could mean that there were more factors counter-acting any positive changes in those locations, that the duration of the intervention was not long enough to detect changes and/or that the overall changes of a recovery from the impact of the economic crisis obscured any additional and slight differences between the controls and beneficiaries.
9. The high prevalence of anemia in Indonesia for both the adult women as well as the children, and the overall trend of increasing BMI among nearly all groups (independent of the FFW programs) reflects an imbalanced diet with excess energy intake and too low micronutrient content. This is a typical diet composition for poorer segments of populations. This phenomenon of malnourished children with obese mothers has been observed in other parts of the world, including Latin America and urban areas in Africa, and is referred to as the 'double burden of malnutrition' (i.e. the occurrence of undernutrition, including micronutrient deficiencies, as well as overnutrition, obesity and its associated chronic diseases, in the same population).
10. It has been well-documented that the economic crisis resulted in an increase of micronutrient deficiencies, particularly anemia among young children. The fact that the FFW programs were only able to reverse this to a small extent and only in two sites is due to a few factors a) the impact of the economic improvement at household level, related to receiving the FFW benefit, was diffused among different sectors of expenditure, b) the interventions did not specifically address the underlying iron

deficiency, either by making supplements available for purchasing by the households (as had been suggested by HKI in 1999 and is currently piloted in a sprinkles project together with CWS) or providing them as part of the benefit, c) for some FFW programs the duration of the program was too short to expect to be able to detect improvements, and d) recovery from the economic crisis also caused improvements in both groups, which made it more difficult to detect additional changes related to the FFW programs among the beneficiaries.

11. However, it should be noted that observed impacts were in the expected direction, and impacted positively on nutritional status. This indicates that there is potential of the FFW programs to improve nutritional status of the poor, and suggests that fine-tuning of interventions is needed in order to accomplish that objective.
12. The FAM activity clearly contributed to further improve the knowledge of the real benefits and impacts of FFW programs implemented by different NGOs in Indonesia. This is very worthwhile, also in the context of an increasing number of IDPs and emergencies worldwide that require food aid to improve the health and nutritional status of populations.

## 7. Recommendations

Based on the above conclusions, the following is recommended:

1. In view of the high prevalence of anemia in Indonesia<sup>7</sup> and the general poor health and nutritional situation of the poorer population segments of Indonesia, including the rise of obesity, specific programs need to be implemented to tackle these health and nutrition problems. Knowing the type of foods that are generally provided in the food aid basket<sup>8</sup>, it will be an extreme challenge to the different NGOs to tackle the prevailing nutritional problems in Indonesia without a specific targeted intervention to reduce micronutrient deficiencies. The high prevalence of anemia (30-70% among children younger than five years and 20-35% among non-pregnant mothers) has a devastating impact both now as well as for the future of this generation of children because it impairs work capacity and has a long-lasting negative impact on intellectual and physical development, which will hence reduce the capacity at which these children will be able to function as adults. Therefore, it is recommended that FFW programs provide (multiple) micronutrients that can be purchased by the FFW beneficiaries with the additional money that is freed up due to the FFW benefit.
2. In light of the findings as discussed above similar activities like the FAM activity should be implemented elsewhere and/or again in Indonesia to further contribute to the discussion on the real nutritional benefits of FFW programs<sup>9</sup>. To maximize the potential of M&E to provide evidence for such a discussion, FFW programs with a nutritional impact as their objective should be implemented for at least 1-2 years in the same site and should provide an appropriate food assistance basket in line with the type of FFW program. Initiatives like the TAP/FFP in which several NGOs,

<sup>7</sup> Kodyat B, Kosen S, de Pee S. Iron Deficiency in Indonesia: Current Situation and Intervention. Nutrition Research 1998; 18(12):1953-1963

<sup>8</sup> Thomas J. Marchione; Foods Provided through U.S. Government Emergency Food Aid Programs: Policies and Customs Governing Their Formulation, Selection and Distribution. American Society for Nutritional Sciences, 2002

<sup>9</sup> Can Food-for-Work Programs Reduce Vulnerability? Christopher B. Barrett (Cornell University), Stein Holden (Agricultural University of Norway), Daniel C. Clay (Michigan State University); November 2001, Final Version

coordinated as a consortium and working toward the same goal, should be repeated, so that lessons can continue to be learned via this systematic approach to M&E.

3. It needs to be recognized that it is equally necessary to achieve the Millennium Development Goals of reducing childhood and maternal mortality, and increase childhood education among internally-displaced persons (IDPs) in countries affected by man-made or natural disasters. As food aid is expected to continue to play a major role in efforts to alleviate nutritional and health problems within these groups, it is important to implement activities like the FAM to further contribute much-needed (but presently-scarce) information on the real nutritional benefits of FFW programs not only in the development context, but also in the context of emergencies. Activities like the FAM activity can help to formulate better intervention strategies not only for 'transitional periods' and 'developmental periods' but also for emergency situations<sup>10</sup> which also remain a particular concern in Indonesia. Evidence based decisions are key to success for the choice of program implementation, and understanding program impacts will ultimately help to allocate scarce resources in the most efficient way.

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<sup>10</sup> Translating Nutrition Research into Action in Humanitarian Emergencies; Barbara A. Reed, Jean-Pierre Habicht, Cutberto Garza; American Society for Nutritional Sciences; 2002

# Appendices

## **Appendix I: Nutritional indicators of food accessibility (dietary quality and quantity)**

During the economic crisis, the Rupiah was dramatically de-valued and prices of a great number of consumer goods increased. These events reduced the purchasing power of households in Indonesia. For many households, this resulted in reduced overall food consumption. As shown in many studies, changes in household income and purchasing power influence the share of total food expenditure allocated to more expensive foods, such as meat, eggs, fruit and commercial foods. We hypothesized that both quality and quantity of the diet might be negatively affected by the crisis. In line with the UNICEF conceptual framework for causes of malnutrition, a decline in dietary intake would likely precipitate increases in malnutrition. Similarly, if food intake begins to improve (through economic improvement and/or programs such as the social safety net program that are implemented to limit the impact of the crisis on the poorest in the population), the nutritional status would be expected to improve. Anemia is increasingly recognized as a good indicator of micronutrient deficiency. Low weight-for-height (measured as body mass index, or BMI, in adults) is a responsive indicator to acute changes in the immediate causes of malnutrition. The HKI/GOI Nutrition Surveillance System (NSS) has collected data on anemia prevalence among and taken weight and height measurements from women and underfive children since it was first established in 1995. Based on the surveillance of the nutritional situation since the crisis (both the rapid deterioration and the gradual improvements over the past year), evidence is growing to support the use and interpretation of data on childhood anemia and maternal BMI as sensitive, responsive indicators to monitor the nutrition situation in times of economic crisis.<sup>11</sup>

*The following pages contain a description and a diagram of the conceptual frameworks in relation to dietary quality and quantity.*

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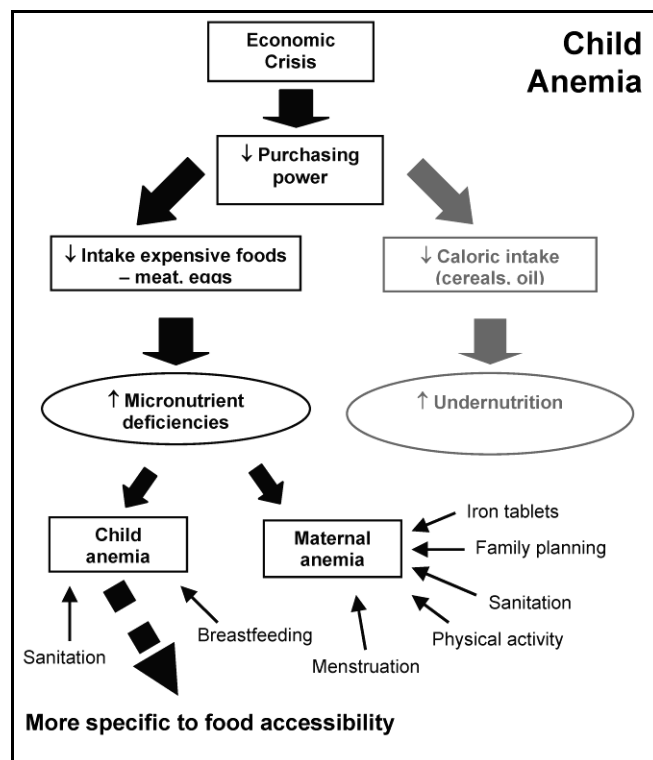
<sup>11</sup> Lynnda Kiess, Regina Moench-Pfanner, Martin W. Bloem, Saskia de Pee, Mayang Sari and Soewarta Kosen; New Conceptual Thinking about Surveillance: Using Micronutrient Status to Assess the Impact of Economic Crises on Health and Nutrition; *Mal J Nutr* 6(2):223-232, 2000.

## Dietary Quality{tc "Dietary Quality"}

In the Indonesian situation, the most important immediate cause of anemia (an outcome indicator of undernutrition) is inadequate intake of iron. Disease is much less important as an immediate cause, because the most important diseases that cause anemia – hookworm infestation and malaria – both have a low prevalence in most areas of Indonesia.

For children, as opposed to mothers, the main source of iron is the diet. The best sources of iron in the diet are animal foods and fortified foods, not only because of a relatively high content of iron but also because of the relatively high bioavailability of their iron. Thus, because the economic crisis reduces purchasing power, which will particularly impact on the consumption of relatively luxurious foods such as animal products and industrially-produced fortified foods, one of the first nutritional consequences of the crisis will be an increase in the prevalence of anemia among children. NSS data collected between 1998 and 2003, especially those among urban poor, confirmed this.<sup>12</sup>

For mothers, there is another important source of iron in addition to the diet – the iron supplements that are provided, as prescribed by the government, during pregnancy. Due to the contribution of supplements to the iron intake of pregnant women, iron status among mothers may not only be affected by changes in dietary quality, but could also reflect the performance of the health care system. During Indonesia's crisis, the health care services were relatively well maintained. Therefore, anemia prevalence is not exclusively an indicator of the nutritional impact of the crisis among women, which it is among children, whose iron status depends mainly on dietary intake.



<sup>12</sup> Bloem MW & Darnton-Hill I (2000). Micronutrient deficiencies: first link in a chain of nutritional and health events in economic crises. In: *Primary and Secondary Preventative Nutrition*. Bendich, A. and Deckelbaum, R.J. (eds). Totowa NJ: Humana Press, Inc.

Dietary quantity{tc "Dietary quantity"}

For mothers, the most important immediate cause of a loss in body weight is reduced food intake. Among mothers, as opposed to young children, disease is much less important as an immediate cause of a loss in bodyweight, because the prevalence of disease is relatively low and generally it does not cause a substantial loss of weight. When there is less food available for the household, the mother will first reduce her own food intake before that of her children and her husband. Therefore, she will be the first to lose weight when the household's access to food is reduced. Also, when the household's access to food increases again due to increased purchasing power as a consequence of economic recovery and/or due to crisis relief programs, her bodyweight will increase again.

Thus, because maternal bodyweight is mainly affected by food intake and because mothers will reduce their own food intake before that of other household members, a change of the prevalence of maternal wasting is an early and sensitive indicator for a reduction, but also for an increase, of the access to food at household level. The pattern of wasting among the older children is much more similar to that observed among mothers than that of the younger children, because younger children suffer more from illness than older children and the relative impact of illness on their bodyweight is also larger. Thus, while among mothers and older children, food intake is the main factor associated with weight changes, among younger children, illness is also an important factor.

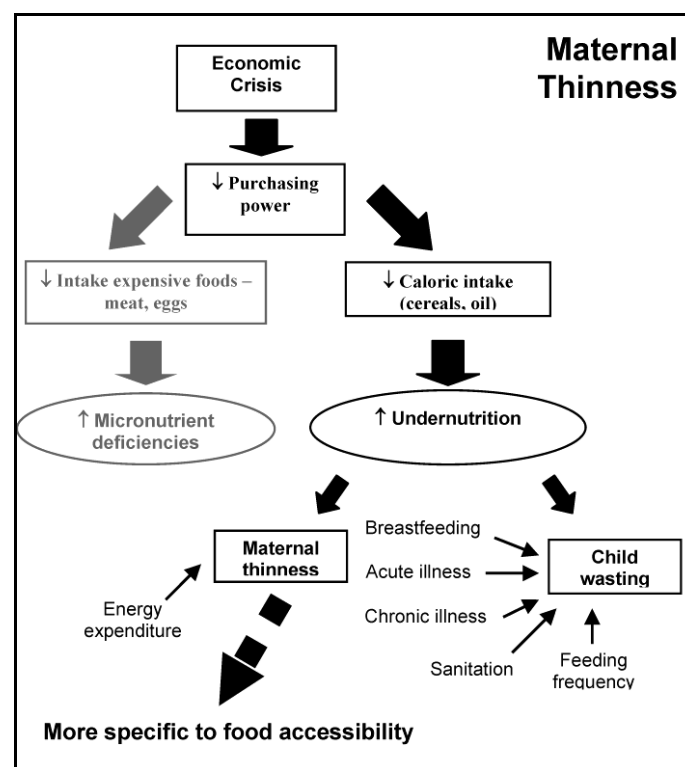
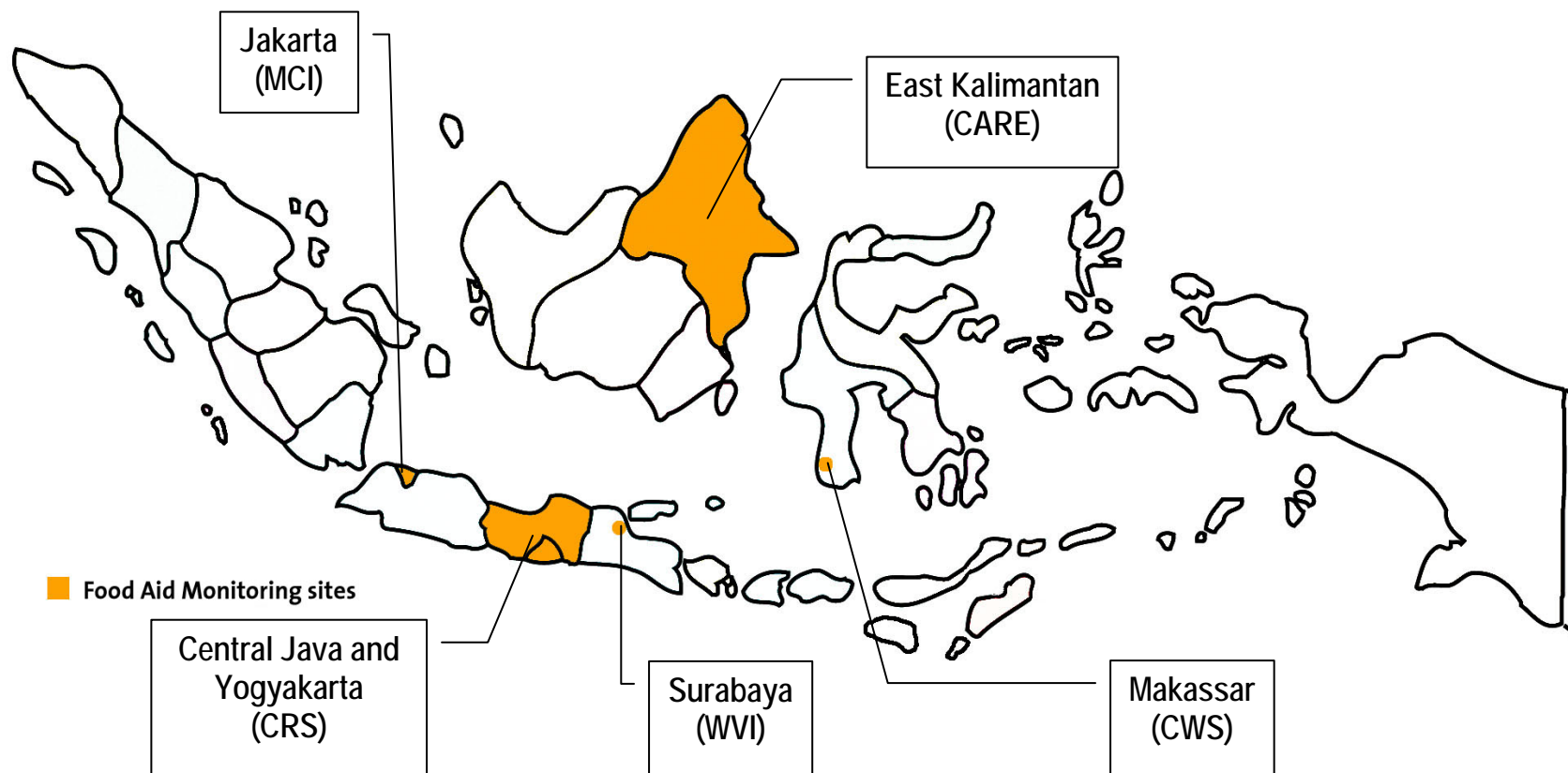


Diagram above reprinted from: Bloem MW, de Pee S, Darnton-Hill I. Micronutrient deficiencies and maternal thinness: First chain in the sequence of nutritional and health events in economic crisis. In Bendich A and Deckelbaum RJ. Primary and Secondary Preventive Nutrition. 2nd edition. Humana Press Inc., Totowa, NJ. In press



## Appendix II: FAM intervention sites



## Appendix III: Timeline of FAM

### Data Collection Schedule Food Aid Monitoring

		2001												2002												2003													
		D	J	F	M	A	M	Jn	Jl	A	S	O	N	D	J	F	M	A	M	Jn	Jl	A	S	O	N	D	J	F	M	A	M	Jn	Jl	A	S	O	N	D	
WVI		R1	R1							R2	R2	R2	R2			R3	R3	R3	R3			R4	R4	R4				R5	R5	R5	R5			R6	R6				
MCI							R1	R1					R2	R2	R2	R2	R2	R2	R3	R3	R3	R3					R4	R4	R4	R4			R5	R5	R5				
CWS								R1	R1	R1	R1							R2	R2	R2	R2			R3	R3	R3	R3	R3			R4	R4	R4	R4-5	R5	R5			
CRS								R1	R1	R1	R1	R1-2	R1-2	R2	R2	R3	R3	R3	R3	R4	R4	R4	R4	R4					R5	R5	R5	R5	R6	R6	R6				
CARE										R1	R1	R1						R2	R2	R2	R2					R3	R3	R3					R4	R4	R4				

**Note:**

R1 = Round 1, R2 = Round 2, etc.

## Appendix IV: Workshops given to USAID and NGOs on FAM

The format of Dissemination Workshops over the course of the FAM Activity included a presentation of results from the previous round of FAM data collection, and a discussion of those results and implications for the TAP program. Workshops were originally scheduled every 6 months for each NGO but in light of changes in implementation schedules of the NGOs the workshop time schedule was adapted accordingly.

Colleagues from USAID HPN and Food for Peace, TAP NGO staff and their local partners, and local and national level representatives of the Ministry of Health (Litbangkes and the FAM Coordinator from the provincial DINAS) were routinely invited to all Dissemination Workshops.

Below is the list of workshops and presentations held by HKI to ensure feedback to NGOs and USAID on the FAM activity.

### FAM Workshops and Presentations, 2001-2003

		Date	Location
1	Dissemination Workshop- WVI Baseline Survey	25 June 2001	Jakarta
2	Dissemination Workshop- MCI Baseline Survey	5 September 2001	Jakarta
3	Dissemination Workshop- CWS Baseline Survey	1 November 2001	Jakarta
4	Dissemination Workshop- CRS Baseline Survey	5 December 2001	Yogyakarta
5	Presentation to CRS local inter-faith committee (IFC) partners in Yogyakarta and Central Java. Results of the CRS Baseline Survey (presented by Siti Halati, HKI)	11 December 2001	Yogyakarta
6	Dissemination Workshop- CARE Baseline Survey	19 February 2002	Samarinda, East Kalimantan
7	Presentation to USAID and TAP NGO Consortium. Overview of key health and nutrition issues in TAP areas (presented by Dorothy Foote, HKI).	5 April 2002	Jakarta
8	Presentation to Dr. Lily Kak, Indonesia back-stop for ANE/SPOTS/PHN, USAID Washington. Summary of FAM Activity presented as part of an overview of HKI programs in Indonesia (presented by Dorothy Foote, HKI).	11 April 2002	Jakarta
9	Presentation to SOAG members, SOAG Retreat. Overview of FAM Activity (presented by Yuslely Usman, <i>Litbangkes</i> ).	30 April 2002	Bogor
10	Dissemination Workshop- WVI Round 2 Survey	20 May 2002	Jakarta
11	Dissemination Workshop- MCI Round 2 Survey	28 May 2002	Jakarta
12	Presentation to Lauren Landis, Director, Food for Peace, USAID Washington. Overview of the FAM Activity in Indonesia (presented by Dorothy Foote, FAM Director, HKI).	27 June 2002	Washington D.C.
13	Dissemination Workshop- CRS Round 2 Survey	6 August 2002	Yogyakarta

14	Presentation to MCI TAP community organizers to share results of the MCI Round 2 Survey (presented by Elviyanti Martini, HKI).	7 August 2002	Jakarta
15	Dissemination Workshop- CWS Round 2 Survey	2 October 2002	Makassar
16	<i>“Iron deficiency anemia in young children: the need for concerted action”</i> . Presentation to USAID, TAP partners, and other stakeholders to raise awareness of this public health problem and discuss options for programmatic response (presented by Dr. Saskia de Pee, Scientific Advisor for HKI Asia-Pacific Regional Office).	3 October 2002	Jakarta
17	Dissemination Workshop-CARE Round 2 Survey	21 November 2002	Samarinda, East Kalimantan
18	Dissemination Workshop- WVI Round 3 Survey	13 February 2003	Surabaya
19	Dissemination Workshop- MCI Round 3 Survey	4 April 2003	Jakarta
20	Presentation to John Lindborg, Interim Mission Director, USAID Indonesia. Summary of FAM Activity presented as part of an overview of HKI programs in Indonesia (presented by Dorothy Foote, HKI).	9 April 2003	Jakarta
21	Presentation to TAP Consortium, TAP Lessons Learned Conference (presented by Dorothy Foote and Regina Moench-Pfanner, HKI).	11 May 2003	Bali
22	Dissemination Workshop- CRS Round 3 and 4 Surveys	7 August 2003	Yogyakarta
23	Dissemination Workshop- CWS Round 3 Survey	9 September 2003	Makassar
24	Dissemination Workshop- CARE Round 3 Survey	8 December 2003	Balikpapan, East Kalimantan

## **Appendix V: Responsiveness of FAM to USAID and NGOs requests for information**

Over the implementation time period of the FAM activity, several requests for additional information besides the routine HKI dissemination efforts (routine workshops with each different implementing NGO; responsiveness and feed-back via e-mail and phone) were made. These requests for information were made by USAID and the different implementing NGOs for different purposes. Material that was requested included brief summaries on preliminary findings, on program indicators and/or position papers in regard to the food security and health situation in Indonesia. For example, USAID requested supporting materials for preparing their respective annual reports, short 'lessons learned' document for the TAP conference in April 2003 whereas the NGOs requested information to underline their current activity and to receive an up-date on their program implementation status in regard to programmatic indicators. Since the listing of these reports/documents prepared would exceed the scope of this appendix, only the key material that was prepared for USAID is included in attachment 1 to this appendix Va as following:

### **Attachment 1: Responses to USAID requests**

- 1a: Memorandum to the FFP office, dated December 2001
- 1b: Memorandum to the FFP office, dated January 2002
- 1c: Short summary on preliminary findings, dated November 2002
- 1d: Working document on TAP 'lessons learned', dated April 2003
- 1e: Short summary on preliminary findings, dated October 2003

The material that was prepared for NGO requests is summarized in Appendix Vb.

## Appendix Va - Attachment 1: Responses to USAID requests

*Attachment 1a: Memorandum to the FFP office, dated December 2001*

### FAX

**To:** Herbie Smith, USAID                      fax #  
**From:** Dotty Foote, HKI  
**Date:** 7 December 2001

Dear Herbie,  
Per our phone call this morning, here is some data and a few sentences (building on what you told me over the phone) for the document you're working on.

Hope it's helpful. Good luck!

Cheers,  
Dotty

**Table 1: Key nutrition indicators in TAP urban populations at baseline of the TAP program**

Variable	Surabaya (WVI)	Jakarta (MCI)	Makassar (CWS)
Low BMI (<18.5kg/m <sup>2</sup> ) among non-pregnant women (%)	10.1	11.1	13.4
Childhood (6-59 mo.) anemia (Hb<110 g/L) (%)	53.9	67.3	60.3
Childhood (6-59 mo.) wasting (w/h z-score <-2sd) (%)	13.2	10.9	8.1

Although an urban focus is unusual in food assistance programs, TAP in Indonesia is operating in response to the evidence of the impact of the economic crisis on nutritional status in the urban poor settings. TAP is currently serving an urban population with strikingly high and unacceptable rates of malnutrition (see Table 1). For purposes of comparison, levels of childhood anemia in children in developed countries are generally estimated around 5-10%. Anemia levels among children in TAP communities range from 54-67%. The long term consequences of anemia in childhood include significantly impaired mental and physical development, therefore the implications of this malnutrition is significant for an entire generation of Indonesians. Levels of child wasting (8-13%) and low maternal body mass index (BMI, kg/m<sup>2</sup>) (10-13%) are also unacceptably high. While these levels of malnutrition (child wasting and low BMI) are not as high as those seen in a famine situation, they much higher than should be expected in a stable population, and are descriptive of a chronic food emergency with significant long term implications for the population.

The political volatility throughout Indonesia (Poso, Ambon, Aceh, West Timor, Kalimantan, Irian Jaya) creates an ongoing situation of insecurity throughout the country. Therefore, the existing problems of food insecurity reflected by these poor nutrition indicators cannot be solved easily.

To: Matt Nims, USAID  
 From: Dotty Foote, HKI  
 Date: 8 January 2002

Dear Matt,

Per our phone call this morning, here is some data and a few sentences (building on what you told me over the phone) about the TAP urban targeting. This is similar to what I sent Herbie in December, with control data added for the three urban sites. Hope it's helpful. Good luck!

Dotty

**Table 1: Key nutrition indicators in TAP urban populations at baseline of the TAP program**

Variable	Surabaya (WVI)	Surabaya control*	Jakarta (MCI)	Jakarta control*	Makassar (CWS)	Makassar control*
Low BMI (<18.5kg/m <sup>2</sup> ) among non-pregnant women (%)	10.1	12.9	11.1	10.7	13.4	11.9
Childhood (6-59 mo.) anemia (Hb<110 g/L) (%)	53.9	60.3	67.3	58.1	60.3	55.0
Childhood (6-59 mo.) wasting (w/ z-score <-2sd) (%)	13.2	9.9	10.9	8.3	8.1	10.1

\*control data gathered from a random sample of poor urban households through the HKI/GOI Nutrition and Health Surveillance System (NSS)

Although an urban focus is unusual in food assistance programs, TAP in Indonesia is operating in response to the evidence of the impact of the economic crisis on nutritional status in the urban poor settings. TAP is currently serving an urban population with strikingly high and unacceptable rates of malnutrition (see Table 1). For purposes of comparison, levels of childhood anemia in children in developed countries are generally estimated around 5-10%. Anemia levels among children in TAP communities range from 54-67%. The long term consequences of anemia in childhood include significantly impaired mental and physical development, therefore the implications of this malnutrition is significant for an entire generation of Indonesians. Levels of child wasting (8-13%) and low maternal body mass index (BMI, kg/m<sup>2</sup>) (10-13%) are also unacceptably high. While these levels of malnutrition (child wasting and low BMI) are not as high as those seen in a famine situation, they much higher than should be expected in a stable population, and are descriptive of a chronic food emergency with significant long term implications for the population.

NGOs implementing the TAP in urban areas have successfully targeted the poorest of the urban poor. The Food Aid Monitoring Activity conducted by Helen Keller International (HKI) compares key health and SES indicators between TAP beneficiaries and a random sample of urban poor households. Baseline data from urban sites confirm that partner NGOs have reached the poorest of the poor: key health and SES indicators are consistently similar or worse among TAP beneficiaries than among the control group.

**Preliminary findings of nutritional impacts of the  
Transitional Activity Program (TAP)  
USAID/Indonesia Office of Food for Peace**

Provided by the Food Aid Monitoring (FAM) Activity,  
Helen Keller International / Indonesia  
11 November 2002

In late 2000/early 2001, HKI (in collaboration with GOI) began surveying households participating in TAP-FFW programs, as delivered by 5 international NGOs in Indonesia. Baseline surveys throughout 2001 confirmed that NGOs had targeted the poorest of the poor. In urban areas, beneficiaries were consistently similar or worse off in terms of key nutrition and SES indicators, when compared to a random sample of urban poor households from the GOI/HKI ongoing Nutrition and Health Surveillance System (NSS). In rural areas, TAP beneficiaries were similar to control households that were selected on the same criteria as those used by each NGO to enroll beneficiaries in the TAP.

TAP NGOs began implementing FFW throughout 2001, and the FAM activity synchronized its survey schedules to the implementation schedules of partner NGOs in each site, in order to best capture any potential effects of the program. Follow up surveys (Round 2 surveys) were conducted from middle/late 2001 into 2002. The length of time between the Baseline and Round 2 surveys varied from 2 to 8 months. Preliminary results comparing households at Baseline and Round 2 are discussed below.

**Nutrition.** FAM nutrition indicators include child anemia ( $Hb < 11.0 \text{ g/dL}$ ), child wasting ( $WHZ < -2SD$ ), child stunting ( $HAZ < -2SD$ ), child underweight ( $WAZ < -2SD$ ), women's (non-pregnant) anemia ( $Hb < 12 \text{ g/dL}$ ), and women's (non-pregnant) wasting ( $BMI < 18.5 \text{ kg/m}^2$ ). Analysis was conducted on paired-cases (individuals present at Baseline and Round 2). For analysis of changes among children, three groups were made based on age at Baseline (0-11, 12-23, and 24-59 months) because of the different patterns of feeding and growth among these different ages.

In urban poor Jakarta, we observed positive trends for TAP beneficiaries in regards to iron status and anemia. The average hemoglobin value of beneficiary children aged 24-59 months increased  $+0.4 \text{ g/dL}$ , compared to a  $-0.1 \text{ g/dL}$  decrease in control children ( $p < 0.01$ ). In terms of prevalence, this resulted in a decrease from 58.0% to 49.4% (difference of 8.6%,  $p = 0.03$ , significant) among beneficiary children and 50.0% to 44.4% (difference of 5.6%,  $p = 0.34$ , not significant) among control children<sup>1</sup>. Among non-pregnant beneficiary women, the change was  $+0.2 \text{ g/dL}$  among beneficiaries, and  $-0.1 \text{ g/dL}$  among controls ( $p < 0.05$ ). This resulted in a decreased prevalence of anemia (28.6% to 27.4%), compared to an increase among control women (23.5% to 26.7%). The changes, especially among the women, are not very large, but they are in the same direction as the changes observed for vitamin A intake. VA intake is a reliable indicator of overall micronutrient intake and diet quality. TAP women in Jakarta increased their total vitamin A (VA) intake, especially from animal sources. TAP women's VA intake from animal sources (median) increased from 20 to 48 retinol equivalents per day (RE/day,  $p < 0.01$ ), and the proportion that

<sup>1</sup> Usually, a decrease in the average hemoglobin value results in an increase in the prevalence of anemia. However, in this case the prevalence of anemia actually decreased slightly, due to a change in the shape of the hemoglobin distribution curve of these control children.



consumed any VA from animal foods during the previous day increased from 61.2% to 75.2% ( $p<0.01$ ), while the changes in VA intake from animal sources in the control group were not significant.

Among the TAP beneficiary children in rural areas the increase of wasting was less than what was observed among control children aged 12-23 months old. Combining data from East Kalimantan and Central Java, the average weight for height z-score of 12-23 month old children in the control group ( $n=209$ ) decreased by 0.39 standard deviations, compared to only 0.04 standard deviations decrease in the beneficiary group ( $n=160$ ). In terms of prevalence, this translated into a rise from 11.0% to 16.3% among control children, and from 11.3% to 11.9% among beneficiary children aged 12-23 months. Whether these results are due to the program itself cannot be concluded yet, because no change was observed in related indicators including posyandu visited in last month, change of oil consumption, and change of debt status of the household. If this protection from wasting is related to the program, it should be observed again for the period between future rounds.

**Program delivery and results.** Indicators such as amount of benefits received per household, frequency of receipt, and number of times the benefits were received compared with months of participation, confirmed in all sites that the program delivery is on track.

Other indicators revealed positive results directly related to the program. The following indicators were compared between households present at both Baseline and Round 2. While these observations were not directly linked to improvements in nutritional status during these first months of the programs, they have potential to impact nutritional status in the longer term, as the FAM will continue to track.

- In Jakarta, the percentage of TAP households with access to a home garden significantly increased from 4.6% to 9.1% compared to a smaller non-significant increase from 3.7% to 4.5% among control households.
- Posyandu attendance within the last month increased among TAP households in all urban areas. In Jakarta, the increase was 28.8% to 39.2%, compared to a decrease from 51.4% to 47.0% among controls. In Surabaya, the increase was 45.9% to 84.6%, compared to a smaller increase from 69.0% to 72.0% among controls. In Makassar, the increase was 31.7% to 44.6%, compared to a decrease from 46.2% to 45.9% among controls. These increased attendance rates for beneficiaries indicate that the urban TAP programs have successfully reached out to groups with limited access to, or utilization of health services.
- In all urban areas, the percentage of control households with debt increased, while among TAP households the percentage with debt either decreased or stayed the same. The most noticeable observation was in Makassar, where control households with any debt in the previous month increased from 39.6% to 61.7%, while TAP households remained the same at 63.4% and 62.6% at baseline and round 2, respectively.
- In Makassar, household oil consumption increased significantly among TAP households (0.13kg/week significant increase for TAP households, compared to 0.04kg/week non-significant increase for controls).

The findings here represent changes observed in the first 2-8 months of the TAP. It is important to note that FAM will continue to track these and other indicators throughout 2003 to identify continued and additional impacts of the programs in all sites.

**Preliminary "Lessons Learned" from the  
Food Aid Monitoring (FAM) Activity,  
Transitional Activity Program (TAP)  
USAID/Indonesia Office of Food for Peace**

*Working Document*

Helen Keller International / Indonesia  
April 2003

In late 2000/early 2001, HKI (in collaboration with GOI) began surveying households participating in TAP-FFW programs, as delivered by 5 international NGOs in Indonesia. Baseline surveys throughout 2001 confirmed that NGOs had targeted the poorest of the poor. In urban areas, beneficiaries were consistently similar or worse off in terms of key nutrition and SES indicators, when compared to a random sample of urban poor households from the GOI/HKI ongoing Nutrition and Health Surveillance System (NSS). In rural areas, TAP beneficiaries were similar to control households that were selected on the same criteria as those used by each NGO to enroll beneficiaries in the TAP.

TAP NGOs began implementing FFW throughout 2001, and the FAM activity synchronized its survey schedules to the implementation schedules of partner NGOs in each site, in order to best capture any potential effects of the program. Follow up surveys are conducted every 6 months (approximately, depending on implementation schedules of NGOs), and are ongoing. Lessons learned so far include:

**Poverty:**

Despite signs that Indonesia is gradually recovering from the 1998 Economic Crisis, poverty is still rampant in communities where the TAP is active. In urban areas, poor households devote more than 70% (on average) of their expenditure to food. Over half (approximately 55%) of urban poor households report earning less than 300,000 rupiah per month (approximately \$1US/day). The level of poverty indicated by these numbers is inevitably accompanied by a variety of unfavorable circumstances, including poor access to health services, safe drinking water, clean latrines, and adequate quality food.

FAM data has shown that TAP programs, particularly in urban areas, have improved these circumstances somewhat (increased posyandu attendance, increased use of closed latrines and safe water sources). FAM data has also shown that in all urban areas, the percentage of TAP households with debt has decreased, or at least remained stable, since the start of the TAP, while the percentage of control households with debt has increased.

**Food quality:**

The definition of food security includes accessibility and availability of adequate food quantity and quality. While some poor families in Indonesia still do not have access to adequate amounts of food, it appears that nearly all poor households do not have access to adequate quality of food. Vitamin A intake (RE/day) is a reliable indicator of food quality, since foods that are low in vitamin A are also low in other essential micronutrients, such as iron. The average VA intakes of women and children in Indonesia's poor are well below the recommended dietary allowance (RDA). The inadequate quality of the diet of Indonesia's poor is reflected in the very high levels of child anemia (up to 70% in underfives in some areas) and stunting (over 40% of underfives in some areas).

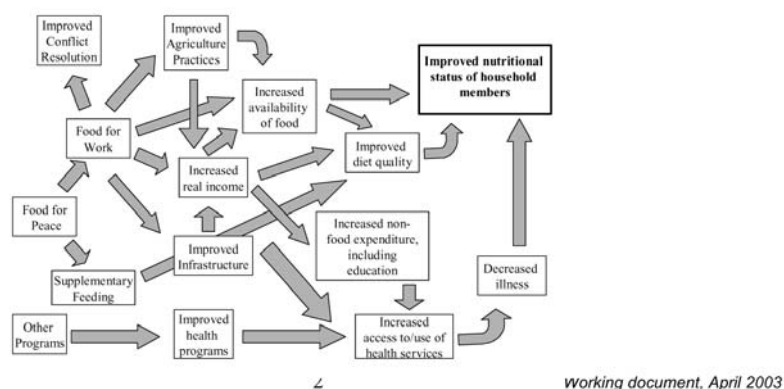
Interventions to address micronutrient deficiencies and their negative outcomes must target micronutrients to the most vulnerable groups (women and children). The NSS has documented relationships between household economics, purchase and consumption of high quality foods, and levels of child anemia. While improving dietary quality can have an effect on anemia, the fact remains that even in developed countries, young children must receive additional micronutrients, via supplementation or fortification, to prevent child anemia. As Food for Peace in Indonesia moves from a “Transitional” to a “Development” Activity, NGOs should continue to seek ways to improve dietary quality via food, supplements, and fortification, and the impacts of these interventions must be documented.

#### Evidence informs decisions:

The process of the FAM activity, which provides evidence of program delivery, program impacts, nutritional status, and relationships among indicators of poverty, diet, and nutrition outcomes, has proven valuable to programmers. HKI has adapted its activities in each site to best meet the needs of individual NGOs, including adjusting the timing of surveys, adapting the data collection instruments, and providing reports that respond to specific data requests, on top of the regular presentation style feedback following each round of data collection per site. FAM activities are ongoing, and the amount of data available to date is about half of what will be available from the FAM as it's currently defined (2001-2003). This means that it's still premature to draw conclusions about all of the impacts of the TAP. However, thus far we can say that household economic indicators (such as debt, and expenditure patterns) are relatively quick to respond to the TAP interventions, and that the TAP has positively impacted certain conditions (health service utilization, safer water and better latrines). Any improvements in the observed nutritional outcomes have so far been subtle, if any. FAM will continue to track program delivery and impact, and nutrition outcome indicators throughout 2003 to identify continued and additional impacts of the programs in all sites.

The conceptual model for the TAP program and evaluation (Figure 1) remains sound based on the global body of evidence showing these relationships. This model should be taken as a foundation, revisited based on current evidence from the TAP, and modified to reflect the strengths of certain interventions that should be considered more integral to the programming of the upcoming DAP.

**Figure 1: Conceptual framework for the TAP program and evaluation**



**Achievements, Status, and Preliminary Findings of  
Food Aid Monitoring (FAM) Activity**

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Prepared by: Helen Keller International / Indonesia  
October 2003

**Program Achievements**

During FY 03, the FAM Program continued to monitor the nutritional impacts of Food for Work Programs as implemented by NGO partners of the Transitional Activity Program (TAP), USAID Office of Food for Peace. Collaborating with TAP NGOs in five sites throughout Indonesia, HKI completed 13 surveys, held 6 dissemination workshops with individual partner NGOs, and provided ongoing technical assistance and data to USAID and NGO partners on an *ad hoc* basis, via reports, presentations, and participation in program planning discussions.

In September 2003, FAM data collection concluded in all five sites, achieving 6 rounds of data collection in Surabaya and Yogyakarta, 5 rounds of data collection in Jakarta and Makassar, and 4 rounds of data collection in East Kalimantan.

**Current Status**

A 3-month extension was granted for the period October-December 2003, in line with an overall extension of the USAID/HKI Cooperative Agreement for the NSS, VA, and FAM Programs. The current focus of the FAM program is to complete data entry, cleaning and analysis of ALL rounds of data for final reporting to USAID in December 2003.

**Preliminary Findings - Maternal and Child Health in TAP Program Areas**

Key indicators of maternal child health and nutrition from the most recently analyzed survey rounds in each site are indicated in the attached table. This information is not intended to be a full assessment of the impact of the TAP programs. However, it is the most up to date description of TAP communities available from the FAM activity. A full assessment of impact will be conducted once the full data sets are available for each site.

A preliminary assessment of TAP Lessons Learned was presented to USAID and the consortium in May 2003, as part of a "Lessons Learned" Conference in Bali. Additionally, analyses of data from R3 surveys in all sites have led to the following observations:

- In Jakarta, diarrhea in the previous week has been reduced among women and children from R1 to R3. Among beneficiary women, the prevalence decreased from 16.2% to 4.8%, compared to a change of only 6.8% to 6.7% among women in the control group. Among beneficiary children, the prevalence decreased from 5.8% to 4.3%, compared to a slight increase from 0.4% to 2.0% among control children.
- In Jakarta, the proportion of households with access to a home garden increased among beneficiaries from 4.6% at baseline to 27.1% at R3. Among controls, a

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small increase was observed from 3.7% to 6.0% of households having access to a home garden.

- In Jakarta, the proportion of households using closed latrines increased among beneficiaries from 40.3% to 56.7%. Among controls, the proportion of households using latrines was unchanged: 76.2% at baseline to 76.8% at R3.
- In Jakarta, the prevalence of child wasting (weight for height z-score <-2SD) decreased slightly among beneficiary children (11.8% to 10.0%), while an increase was observed among control children (7.4% to 12.3%). Similarly, the prevalence of child underweight (weight for age z-score <-2SD) decreased slightly among beneficiary children (45.5% to 44.5%), while an increase was observed among control children (28.3% to 36.1%).
- In Makassar, the proportion of beneficiary households with debt in the previous month did not increase from baseline to R3 (66.2% to 65.0%); however, the proportion of control households with debt in the previous month rose from 38.8% to 54.9% over that same period.
- In Makassar, *posyandu* attendance increased among beneficiary households. The proportion of beneficiary households with children under five that attended the *posyandu* in the previous month increased from 35.0% to 74.3%, compared to a much smaller increase among control households with children under five (53.0% to 59.3%).
- In Makassar, anemia among beneficiary children decreased from 62.9% to 49.2% from baseline to R3, while a much smaller decrease was observed among control children (55.0% to 50.5%).
- In East Kalimantan, statistically significant improvements in women's underweight (BMI <18.5) were observed among beneficiary women. The prevalence of low BMI from baseline to R3 decreased from 13.0% to 12.2%, compared to an increase from 10.2% to 11.4% among control women. Similarly, the average BMI value (kg/m<sup>2</sup>) increased among beneficiary women from 21.9 to 22.2, compared to an insignificant change among control women (22.1 to 22.3).

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Year 1, Issue 1  
August 2002

# FoodforThought

— FOOD ASSISTANCE & NUTRITION SERIES —

## Tracing the potential impact of Food-For-Work programs on anemia

Political turmoil and natural disasters continue to impede efforts in Indonesia to recover from the 1998 economic crisis. Food insecurity remains a great problem for the millions of Indonesians living in poverty, particularly in urban areas where resources for coping with poverty are limited. The effects of the crisis on nutrition have been well documented, including a decrease in consumption of high-quality foods and a rise in micronutrient deficiencies after 1998.<sup>1,2,3</sup> Childhood anemia among Indonesia's poor is alarmingly high; it affects up to 80% of 12-23 month old children in some areas and starts as early as 3 months of age.<sup>4</sup> While the long term solutions to this problem ultimately lie in the alleviation of poverty and sustained strategies that promote good nutrition for all segments of the population, programs are now being targeted to improve food and economic security of Indonesia's poorest communities.

The Transitional Activity Program (TAP) of USAID/Indonesia's Office of Food for Peace provides food assistance to the poor households still recovering from the impacts of the crisis. Helen Keller International (HKI) is monitoring the nutritional impacts of the TAP program in collaboration with the Government of Indonesia (GOI). This bulletin discusses the problem of child anemia in Indonesia (specifically in TAP program areas) and how the inputs of the TAP program can potentially impact child anemia.

### TAP Consortium

The Transitional Activity Program (TAP) in Indonesia is a 3-year program of the USAID Bureau for Democracy, Conflict, and Humanitarian Assistance/Office of Food for Peace. As part of this program, five international NGOs deliver food-for-work and complementary feeding programs to poor communities in transition. This non-emergency food aid is targeted to vulnerable groups hardest hit by the 1998 economic crisis, and the subsequent fall-out of inflation, lower wages, political and religious conflicts, and food insecurity. The sixth NGO of the consortium, HKI, applies its many years of experience in nutrition surveillance and program evaluation to monitor the impacts of the TAP program on nutrition and food security of beneficiary households.

### TAP Consortium Members


- CARE
- Catholic Relief Services
- Church World Service
- Mercy Corps International
- World Vision International

<sup>1</sup> Block S, Kiess L, Webb P et al. *Did Indonesia's Crises of 1997/98 Affect Child Nutrition? A Cohort Decomposition Analysis of the National Nutrition Surveillance Data*, American Economic Review; submitted for publication, March 2002.

<sup>2</sup> Bloem MW and Darnton-Hill I (2000). *Micronutrient Deficiencies: First Link in a Chain of Nutritional and Health Events in Economic Crisis*. In *Primary and Secondary Preventative Nutrition*, Bendich A and Deckelbaum RJ (eds). Totowa, NJ: Humana Press Inc.

<sup>3</sup> de Pee S, Bloem MW, Sari M, Soekarjo DD, Tjiong R, Kosen S, Muhilal, Satoto (2000). *Indonesia's Crisis Causes Considerable Weight Loss among Mothers and Adolescents*. *Mal J Nutr* 2000;6(2):203-214.

<sup>4</sup> de Pee S, Bloem MW, Sari M, Kiess L, Yip R, Kosen S (2002). *The high prevalence of low hemoglobin concentration among Indonesian infants aged 3-5 months is related to maternal anemia*. *J Nutr* 2002; 132: 2215-2221.



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### Child anemia in Indonesia

The effects of the crisis on nutrition have been well documented, including a decrease in consumption of high-quality foods and a rise in micronutrient deficiencies after 1998.

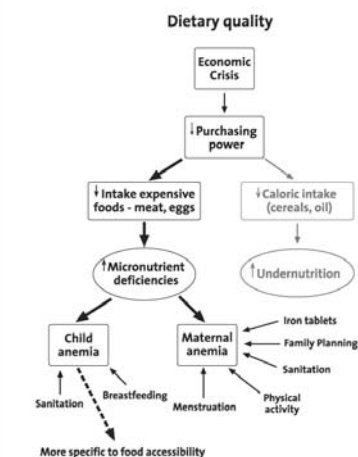
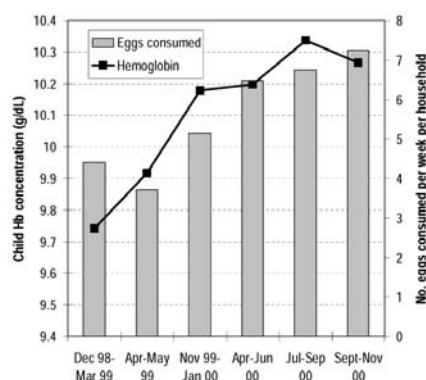


Diagram reprinted from: Kiess L, Moench-Pfanner R, Bloem MW, de Pee S, Sari M, Kosen S (2000). *New Conceptual Thinking about Surveillance: Using Micronutrient Status to Assess the Impact of Economic Crises on Health and Nutrition*. *Mal J Nutr* 2000;6(2):223-232.

#### What is the problem?

Iron deficiency, the most common nutritional deficiency in the world, is the leading cause of anemia (Iron Deficiency Anemia, or IDA). IDA impairs physical and mental development of children. It also

**Figure 1.** Mean hemoglobin concentration of 12-23 month old children and mean household egg consumption in the previous week, urban Jakarta 1999-2000.



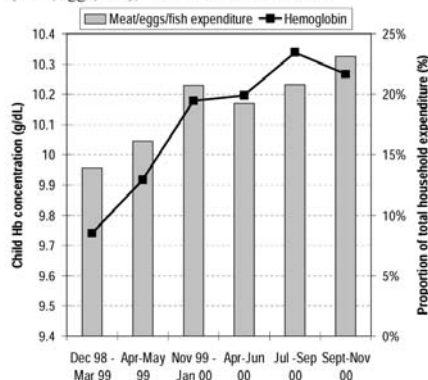
impairs the immune system of individuals and results in lethargy and reduced productivity. Anemia in children ( $Hb < 11.0 \text{ g/dL}$ ) is reflective of chronic household food insecurity, particularly poor access to high-quality micronutrient-rich foods. Children who are deprived of iron and other essential nutrients during the critical developmental phase of early childhood will most likely not obtain their full intellectual and physical potential in later life, an effect that is largely irreversible.

In poor communities of Indonesia, where up to 80% of children 12-23 months old are anemic, the consequences for the future of these children and the nation are serious. Among TAP beneficiaries, the problem of anemia is particularly severe in urban areas. Of Indonesia's 210 million people, 41% (approximately 86 million) live in urban centers.<sup>5</sup> The magnitude, and the severity, of the anemia problem among Indonesia's poor is therefore great.

Immediately following the economic crisis in Indonesia, nutrition surveillance documented a sharp rise, and later a gradual slight recovery, in the proportion of anemic children. More detailed analysis of data from urban Jakarta, collected from December 1998 to November 2000, showed that the rise in the average hemoglobin concentration of 12-23 month old children corresponded directly with an increase in the share of household expenditure on high-quality foods, and an increase in household consumption of eggs (Figures 1 and 2, NSS unpublished data 1999-2000). This suggests that economic access to high-quality foods is a key determinant of children's nutritional status.

<sup>5</sup> World Bank. World Development Indicators database. July 2001.

**Figure 2.** Mean hemoglobin concentration of 12-23 month old children and mean share of total household expenditure in the previous week devoted to animal foods (meat, eggs, fish), urban Jakarta 1999-2000.



### The HKI-GOI Food Aid Monitoring (FAM) Activity

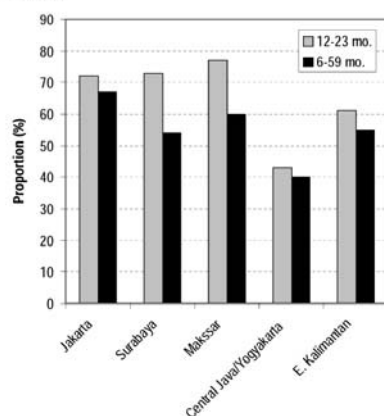
Since 1995, HKI/Indonesia has collaborated with the GOI and local institutions to expand the evaluation component of a large nutrition program in Central Java, to a Health and Nutrition Surveillance System (NSS) that covers 70% of the Indonesian population. The NSS has documented the impacts of the 1998 economic crisis, establishing reliable and sensitive indicators to household level changes in food security. Because of this experience, HKI was invited to join the TAP consortium and the Food Aid Monitoring (FAM) Program was established in 2000. A key element of the FAM is the regular feedback of data from program areas to the implementing NGOs.

Despite the slight recovery since the crisis, levels of anemia in Indonesia remain alarmingly high, particularly in urban areas. Figure 3 shows the situation of childhood anemia among TAP beneficiaries in five sites (urban Jakarta, urban Surabaya, urban Makassar, rural Central Java/Yogyakarta, and rural East Kalimantan). Anemia in children 6-59 months old ranges from 40-67%, and even higher among 12-23 month olds (43-77%). In comparison, levels of childhood anemia in well-nourished populations in developed countries are estimated in the range of 5-10%.

#### What are the solutions?

In cases like Indonesia, where iron deficiency is the main cause of anemia, programmatic responses to increase iron intake include food fortification, dietary diversification, and iron supplementation. However,

**Figure 3.** Anemia among TAP beneficiaries in Indonesia – children aged 6-59 months and children aged 12-23 months.



since household economics, more than knowledge, frequently limit the choices available to poor mothers, programs to help mothers improve the quality of their children's diets must combine education with increased purchasing power and increased availability of high-quality foods. The value of the food (rice, and in some cases oil or beans) distributed through the TAP Food-For-Work (FFW) program is approximately Rp. 150,000-200,000 (US\$15-20) per month – a significant addition to household income in a population where approximately 60% of households report earning Rp. 300,000 (US\$30) or less per month (HKI, unpublished data). With this additional (not replacement) household income, money otherwise spent on staple foods becomes available to purchase other foods, pay for education, or access health services. The FAM activity tracks household expenditure in order to monitor these changes and the potential impacts on nutrition.

The FAM activity also collects data on other pathways and program inputs that can potentially affect nutrition. Collecting this data at the household level at regular intervals, and feeding it back to the NGOs throughout the course of the program, allows the NGOs to optimize the delivery of FFW and plan other potential programs to complement the FFW activities.

#### Conclusions and recommendations

- The problem of childhood anemia among Indonesia's poor is severe and affects millions of children. Programs to alleviate iron deficiency, the main cause of anemia in this population, must address the lack of access to micronutrient-rich foods (animal sources such as eggs, or effectively fortified foods).
- Levels of childhood anemia in Indonesia are highest among the urban poor. Food assistance to urban populations is appropriate and much needed to address food insecurity (inadequate quantity and quality of food). Food assistance should be combined with interventions to address micronutrient deficiencies in children.
- The TAP and the FAM activity form a unique and useful collaboration between USAID, its NGO partners and GOI counterparts working in food assistance and health and nutrition. Feedback from the FAM monitoring activity and technical support to NGOs should continue to maximize and document the potential impacts of the TAP.





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## Appendix Vb – Responses to the NGOs

### WVI

- **July 2001** – Summary report of baseline findings from WVI TAP Surabaya, including socio-demographic, health and nutrition, and environmental indicators (5 pages).
- **October 2002** – Summary of FAM R2 and NSS R19 data from Surabaya, including socio-demographic information, feeding practices, reproductive health, nutrition, and immunization practices, to support a WVI intervention in Health Education and Food for Training Activities in Surabaya (per request of Dr. Endang Widyastuti, 18 pages).
- **March 2002** – Summary of FAM R3 data from Surabaya, including social demographic information, health practices, nutrition, food consumption, and expenditure, to assess program performance and to help target for future activities (9 pages).
- **May 2003** – Summary of FAM R1-R3 data from Surabaya including socio-economic information, health and nutrition, and health practices, to assess performance of TAP program on certain indicators (9 pages).

### MCI

- **October 2002** – Description of food consumption, health and nutritional status, and health practices based on FAM R2 and NSS R19 data from Jakarta, to support a situational analysis for a pilot Hearth project (per request of Vanessa Dickey, 24 pages).
- **April 2002** – Summary of FAM R3 data from Jakarta including socio-economic indicators, environmental conditions, household food consumption, health practices, feeding practices, and health and nutritional status (11 pages).
- **October 2003** – Summary of FAM R1-R3 data from Jakarta on child underweight and women's BMI, to contribute to MCI annual report to USAID (per request of Penny Anderson, 1 page).

### CWS

- **October 2003** – Summary of nutritional indicators from FAM R3 survey in Makassar, to support CWS annual report to USAID (per request of Maurice Bloem, 4 pages).

### CRS

- **November 2002** – Summary of FAM R2 and NSS R19 data related to environmental conditions, health and nutritional status (per request of Mira Kususmarini, 11 pages).

### CARE

- **October 2003** – Summary of FAM R1-R3 key indicators for maternal and child health and nutrition, to support CARE annual report to USAID (per request of Johan Kieft, 1 page).